KINDER MORGAN TERMINALS

One Terminal Road, Carteret, NJ 07008

February 28, 2018

VIA OVERNIGHT MAIL

Mr. Wilfredo Palomino
Hazardous Waste Facilities Branch
U.S. Environmental Protection Agency, Region 2
290 Broadway, 22nd Floor
New York, NY 10007 – 1866

RE: Annual Progress Report For 2017
Former Port Mobil Terminal
4101 Arthur Kill Road
Staten Island, New York
EPA I.D. No. NYD000824516

Dear Mr. Palomino:

Enclosed is the Annual Progress Report for 2017 for the Former Port Mobil Terminal located at 4101 Arthur Kill Road in Staten Island, New York. This report was prepared pursuant to Section 3008(h), 42 U.S.C. 6928(h) of the Resource Conservation and Recovery Act (RCRA) Administrative Order on Consent (AOC) issued by the United States Environmental Protection Agency (USEPA) to the current property owner, Kinder Morgan Liquids Terminals, LLC, and former property owner ExxonMobil Corporation, on September 10, 2009.

Should you have any questions, please call me at 732-541-5161 x. 75224.

Sincerely,

R.J. Sherman
Manager - Remediation

cc: A. Everett – USEPA (letter only)
J. Moras – NYSDEC (electronic only)
S. Trifiletti – ExxonMobil (electronic only)
E. Gustafson – Louis Berger
T. Lloyd – Louis Berger

412 Mount Kemble Avenue
Morristown, New Jersey 07962

Louis Berger

Annual Progress Report for 2017

Former Port Mobil Terminal
4101 Arthur Kill Road
Staten Island, New York

February 28, 2018

KINDER MORGAN
LIQUIDS TERMINALS LLC

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1. INTRODUCTION

This Annual Progress Report for the Former Port Mobil Terminal (Facility) located at 4101 Arthur Kill Road, Staten Island, New York (the Site) has been prepared by Louis Berger on behalf the property owner, Kinder Morgan Liquids Terminals, LLC (Kinder Morgan) and the former property owner ExxonMobil Corporation (ExxonMobil) pursuant to Section 3008(h), 42 U.S.C. 6928(h) of the RCRA Administrative Order on Consent (the Order) issued by the United States Environmental Protection Agency (USEPA) on September 10, 2009. A Site Location Map is provided as Figure 1-1, and a Site Plan is provided as Figure 1-2.

This Annual Progress Report presents the following:

- Summary of significant activities occurring in the fourth quarter 2017 (October through December 2017);
- Details of the fourth quarter 2017 operation and maintenance (O&M), monitoring of Interim Corrective Measures (ICMs), and Monitored Natural Attenuation (MNA) activities performed between October and December 2017; and
- The annual data evaluation of MNA, perimeter and hot spot monitoring results between January and December 2017 including statistical analysis and concentration trends.

Individual quarterly reports were prepared and submitted for the first, second and third quarters. The fourth quarter results are presented in the annual report.

2. SUMMARY OF SIGNIFICANT ACTIVITIES (FOURTH QUARTER)

A summary of the significant activities performed at the Site between October and December 2017 is provided below:

- Between November 6, 2017 and January 3, 2018, implementation of the USEPA-approved corrective measures at the Former Lube Tanks (Area 6) were undertaken. Initially, the overburden soils above the smear-zone were excavated and screened with a photoionization detector (PID). Soils that exhibited PID readings greater than 50 parts per million (ppm) were segregated for off-site disposal, and soils 50 ppm or less and showed no visual or olfactory signs of contamination were stockpiled for re-use. Smear-zone soils were then excavated and disposed of offsite. In total, 971.25 tons of impacted soils were transported offsite for disposal as petroleum-impacted waste. Following excavation, 13,260 pounds of sodium persulfate along with 4,080 pounds of iron ethylenediaminetetraacetic acid (FeEDTA), which serves as an activator, was prepared in batches and applied to the open excavation. The saturated zone of the excavation was then backfilled with ¾-inch washed crushed stone mixed with 1,873.4 pounds of Oxygen-Releasing Compound-Advanced (ORC-A). The stockpiled soil less than 50 ppm was then used to backfill the remaining portion of the excavation. The surface was then restored with 1.5-inch surface stone.
- A quarterly MNA monitoring event was performed by Tetra Tech in October 2017 on behalf of Kinder Morgan. The work was performed in accordance with the Order, the revised Corrective Measures Study (CMS) Work Plan (June 11, 2010), and the Quality Assurance Project Plan (January 2016). The results are presented and discussed in Section 4.
- During October and November 2015, an intrinsically safe Spill Buster product recovery system was installed in monitoring well MW-100 to aid in the recovery of free product. The Spill Buster operated properly through October and November, but was found to be nonoperational on December 15, 2017. On January 12, 2018, the product pump was replaced and the Spill Buster resumed normal operation. Recovered product is directed into on-site drums and product measurements in MW-100 and the drums are conducted twice a month.

3. ICM MONITORING AND O&M ACTIVITIES (FOURTH QUARTER)

This section presents the ICM monitoring and O&M activities conducted during the fourth quarter of 2017 (October through December 2017). During this period, Tetra Tech performed three monthly ICM Monitoring events which occurred on: October 23, 2017; November 27, 2017; and December 29, 2017. Three ICM system operation checks, consisting of manual product recovery and absorbent sock removal/replacement were also performed on: October 6, 2017; November 2, 2017; and December 15, 2017. Beginning on November 18, 2015, active product recovery began at well MW-100, and Tetra Tech performed subsequent O&M activities for the product recovery system at that location. O&M activities included: measuring product accumulation in the product collection drum; ensuring the recovery system (Spill Buster) was operational; and coordinating drum disposal with Kinder Morgan. The location of the ICMs are shown on Figure 1-2, and ICM monitoring data collected during this period are provided in Tables 3-1a, 3-1b, 3-1c and Table 3-2. Cumulative product recovery totals from active ICMs are summarized in Table 3-3, and shown on Figure 3-1. The graph on Figure 3-1 shows the start of the prior automatic pumping systems (May 2003) and steadily increasing product recovery volumes until July 2012 when the automatic system was turned off and manual product recovery began (and currently continues, except at MW-100). Due to the presence of recoverable product at monitoring well MW-100, the Spill Buster operation restarted on November 18, 2015. As indicated in Table 3-3, approximately 2,649.9 gallons of product have been recovered from active ICMs to date. Table 3-4 presents a record of product and sheen observations and measurements during 2014 through 2017. During 2017, only three (3) monitoring wells had measurable product (MW-100, RFI-7 and TMP-1). A detailed description of each ICM at the Site is provided in the revised CMS Work Plan. The results of the ICM activities conducted during this quarterly period are summarized in the following sections.

3.1 BULKHEAD AREA (AREA 4)

The Bulkhead Area contains a currently inactive Thermal Enhanced Product Recovery System which was installed to recover highly viscous and weathered product that cannot be effectively addressed by conventional methods, such as bailing, skimming, and pumping. The Bulkhead Area system layout and location of wells are shown on Figure 3-2. None of the three recovery wells have shown recoverable product since 2001, therefore none are currently equipped with recovery pumps and the steam loops are on standby. The steam loops can be reactivated and a Scavenger pump can be added to any of the recovery wells upon detection of product in those wells. Very little product has been detected or recovered from the Bulkhead Area monitoring wells over the past several years (see Figure 3-3). The graph on Figure 3-3 indicates measurable product thickness has been minimal in these wells over the past 11 years. Absorbent socks are currently used to recover product in wells with an apparent sheen.

Activities performed this period included gauging of monitoring wells LC-1, LC-2, TMP-1, TMP-2, and TMP-3 and recovery wells RW-1, RW-2, and RW-3. For this reporting period, measureable product was not observed any of the monitoring or recovery wells. To date, approximately 111 gallons of product have been removed from the Bulkhead Area recovery and monitoring wells.

3.2 SIPHON BUILDING / FORMER OIL WATER SEPARATOR (OWS) AREA (AREA 7)

A recovery well, RW-4, was installed in the Siphon Building Area in 1998 to facilitate product recovery at ambient conditions. The Siphon Building Area system layout and the location of the wells are shown on Figure 3-4. Activities performed this period included gauging of monitoring well RFI-9R and recovery well RW-4. Recoverable product levels have not been detected in RW-4 or RFI-9R since their installation. Furthermore, recovery well RW-4 has never exhibited measurable product, and well RFI-9R only exhibited measurable product once (0.01 foot in March 2011). Product recovery equipment has been removed from RW-4; however, the equipment can be redeployed should monthly gauging indicate recoverable product levels in the area.

On September 12, 2014, Louis Berger personnel performed cursory soil endpoint sampling in the vicinity of the former OWS, located adjacent to the former siphon building. This work included the advancement of multiple soil borings using a decontaminated stainless steel hand auger and other hand tools. During boring advancement, product was observed floating on the water surface and daylighting through the soil (seeps) at multiple locations around the former

OWS. Analytical sampling from soils 6-inches above the water table indicated PAHs in excess of the NYSDEC's Industrial Use SCOs, and petroleum fingerprinting determined the product to be similar to that of #2 fuel oil. As an interim remedial measure (IRM) to address the identified product, Louis Berger conducted product delineation and removal activities on October 30 and 31, 2014. Nine test pits were completed throughout the area with product observed at three locations. However, due to the presence of standing water, the extent of product could not be fully delineated. At the three test pits where product was identified, a vacuum truck was used to remove the pooled product.

During April 2016, Louis Berger implemented a field program at these areas to delineate the product and PAH impacts. This field program consisted of soil borings for the collection of soil samples and test pits for product delineation. On December 30, 2016, Louis Berger submitted the CMI Work Plan Addendum to address the PAH and product impacts in this area. The CMI Work Plan Addendum was approved by the USEPA on May 15, 2017. Implementation of corrective measures is scheduled for 2018.

3.3 RFI-7 / RW-5 / MW-100 NORTH BEACH AREA (AREA 3)

The North Beach Area system layout and location of wells are shown on Figure 3-5. Activities performed this period included gauging of monitoring wells MW-100, MW-102, RW-1A, L-29, and RFI-7 and recovery well RW-5. During this reporting period, product was measured at the following wells in this area:

- MW-100 (non-detect to 0.25 feet); and
- RFI-7 (non-detect to 0.09 feet).

Monitoring well MW-100 continues to display consistently recoverable product, as it has over the last several years. Automated product recovery in MW-100 was historically conducted via a Spill Buster system until July 18, 2012, when the system was shut down and removed after the Spill Buster was identified as not intrinsically safe/explosion proof and not certified for use in Hazardous Locations as defined by the National Electric Code (NEC, NFPA 70). On November 18, 2015, a Magnum Spill Buster was re-installed at MW-100 and began operation. During October and November, 2017, the Spill Buster operated normally; however, during an O&M inspection on December 15, 2017, it was observed that the unit was nonoperational. A call was placed to the manufacturer (Bowles Corporation) to troubleshoot the issue. The likely cause was identified as a fault in the pump. Based on the recommendation from the manufacturer, a new pump was ordered. On January 12, 2018, the product pump was replaced and the Spill Buster system resumed normal operation. No detectable levels of product beyond a sheen were measured in any other monitoring well from this area during the current quarterly reporting period, with the exception of monitoring well RFI-7. Product recovery amounts are shown on Table 3-3. Absorbent socks are used to sorb product in the other wells which have an apparent sheen (RFI-7 only). To date, approximately 2,520 gallons of product has been removed from North Beach Area recovery and monitoring wells.

3.4 NORTHERN BULKHEAD / ICM-1 AREA

On April 4, 2007, Kinder Morgan Terminals reported a release of approximately 372 barrels of #2 heating oil in the northern bulkhead area in the vicinity of ICM-1. The spill originated from an open underground vacuum line. Kinder Morgan reported that emergency response activities recovered approximately 367 barrels (15,414 gallons) of product from this release. Subsequent product recovery events during September and October 2007 recovered approximately 5 additional gallons of product. On November 1, 2007, a Spill Buster system was installed at ICM-1. The system was later removed in April 2008 for explosion proof modifications. The system has not been redeployed due to the relatively minor and unrecoverable thickness of product (sheen to less than 0.3 feet) observed in well ICM-1. The Northern Bulkhead / ICM-1 Area system layout and location of wells is included on Figure 3-4.

Activities performed this monitoring quarter included gauging of monitoring well ICM-1, with no measurable product detected other than a sheen. Sustained recoverable product has not been detected in ICM-1 since April 2008; therefore, no active recovery equipment has been installed. Any minimal product detected in ICM-1 is removed during ICM visits via manual methods (e.g., absorbent socks, bailer, etc.). Approximately 15.2 gallons of additional product

were removed from ICM-1 after the Spill Buster was taken out of service at this location. In total, approximately 15,434 gallons of product has been removed from this area since 2007.

3.5 BOILER HOUSE AND FORMER LUBE TANK AREAS (AREA 5 AND 6)

The Boiler House and Lube Tank Areas were the subject of pilot-scale testing of In-Situ Chemical Oxidation (ISCO) in 2011 as part of CMS activities. To facilitate the ISCO pilot testing activities, several wells were installed in each area for injection, monitoring, and/or soil vapor extraction purposes. Following installation, product was detected in several of these wells during subsequent liquid level gauging activities in 2011 and 2012. These wells include SVE-BH-1, SVE-BH-2, MW-LT-2, and MW-LT-3, and were therefore added to the ICM Monitoring Program in 2013. Absorbent socks are used to sorb product in wells which have an apparent sheen.

Between November 6, 2017 and January 3, 2018, implementation of the USEPA-approved corrective measures at the Former Lube Tanks (Area 6) were undertaken. Initially, the overburden soils above the smear-zone were excavated by Innovative Recycling Technologies, Inc. (Innovative), of Lindenhurst, NY, and screened with a PID by Louis Berger personnel. Soils that exhibited PID readings greater than 50 ppm were separated from the soils that were screened at 50 ppm or less and showed no visual or olfactory signs of contamination. The smear-zone soils were then excavated and stockpiled with the soils that were screened over 50 ppm. The smear-zone soils and soils screened at over 50 ppm were sampled for waste classification parameters then trucked off-Site under manifest to Bayshore Recycling Corporation (Bayshore) of Keasbey, NJ for disposal. Soils that exhibited PID readings 50 ppm or less and showed no visual or olfactory signs of contamination were kept for reuse. In total, 971.25 tons of impacted soils were transported offsite for disposal as petroleum-impacted waste. Following excavation, 13,260 pounds of sodium persulfate along with 4,080 pounds of FeEDTA, was prepared in batches in and applied to the open excavation by Summit Drilling of Bound Brook NJ (Summit). The saturated zone of the excavation was then backfilled with ¾-inch washed, crushed stone mixed with 1,873.4 pounds of Oxygen-Releasing Compound-Advanced (ORC-A). The stockpiled soil less than 50 ppm was then used to backfill the remaining portion of the excavation, and the surface of the work area was restored with 1.5-inch stone. During excavation activities, the former ISCO pilot test wells were removed. Per the CMI Work Plan, two new monitoring wells are planned for installation during March 2018 to track contaminant reductions.

Product gauging and recovery efforts for the Boiler House monitoring wells continued on a twice-monthly basis during this reporting period. Product thicknesses beyond a sheen were not observed in any of the Boiler House monitoring wells. To date, approximately 1.4 gallons of product have been removed from the Boiler House and Former Lube Tank Area wells.

4. MNA PROGRAM RESULTS (ANNUAL EVALUATION)

This section presents the annual evaluation of the historical groundwater data. It incorporates the data from the quarterly sampling events conducted during 2017 so that the statistical analysis, concentration trends, and overall compliance with the Order can be reviewed and updated.

Based on previous site investigations at the Facility, elevated concentrations of petroleum hydrocarbons have been detected in groundwater in some areas. The areal extent of these elevated groundwater impacts is limited, displaying relatively rapid attenuation with distance from the zones of higher concentrations. Based on the data and conclusions from the former Interim Corrective Measures Investigation (ICMI), RCRA Facility Assessment Sampling Visit / RCRA Facility Investigation (SV/RFI), Risk Assessments, and the MNA program being implemented at the Facility since July 2000, these groundwater issues do not pose a risk to human health and the environment, and are being addressed by the natural attenuation mechanisms occurring at the Facility. The on-going MNA program has been used to evaluate the effectiveness of natural attenuation and hot spot remedies to achieve the site-specific remediation goals for the existing contaminants of concern at the Facility.

A detailed description of the MNA sampling program, including a Sampling and Analysis Plan (SAP), is included in the revised CMS Work Plan submitted to the USEPA on June 11, 2010, and was revised as outlined in the Quarterly Progress Report for July to September 2012, dated November 14, 2012. Approximately 59 MNA sampling events over 16 years have been performed since the program was initiated in July 2000. This section discusses the results of the past four quarterly MNA groundwater sampling events conducted in January, April, July, and October 2017, in accordance with the revised CMS Work Plan, the Quality Assurance Project Plan, and the CMI Work Plan. A discussion of the hot spot and perimeter monitoring conducted in conjunction with the MNA program during this time is also included in this section.

Monitoring wells sampled as part of the MNA program are indicated on Figure 1-2. All scheduled wells were sampled during each quarterly event, with the exception of monitoring well RFI-7 during the 1st and 4th quarters (this was due to the presence of product).

4.1 HYDROGEOLOGY

Groundwater elevation data and contours from the January and July 2017 MNA sampling events are depicted on Figures 4-1 and 4-2, respectively. Current groundwater elevation data is provided in Table 4-1. As indicated on the groundwater contour maps, groundwater flow across the Site is generally to the northwest, toward the Arthur Kill, similar to surface topography. Groundwater flow direction has generally remained constant and is consistent with the hydrogeological characterization made in the SV/RFI.

4.2 LABORATORY DATA VALIDATION

Data validation was performed by Data Check, Inc. of New Durham, New Hampshire, according to the criteria presented in the updated Quality Assurance Project Plan (QAPP) for the Facility dated January 2016. Analyses were generally within acceptable Quality Control (QC) specifications, with deviations as detailed in the full Data Validation Reports presented in Appendix A. All data, expect rejected data for select ferrous iron samples, are considered to be valid and usable with the appropriate qualifiers as presented in Table 4-2. Copies of the original laboratory data reports for the 2017 monitoring periods are presented in Appendix B.

For the October 2017 sampling round, the positive ferrous iron results for samples N-43, MW-116, RFI-2, RFI-4, RFI-11 and DUP-20171026 (field duplicate of RFI-2) were rejected since the concentration detected in the associated field blank was similar to the concentrations reported.

While not rejected, the following results were flagged:

- Nitrate: Samples MW-114, RFI-2, DUP-20171026 (field duplicate of RFI-2) and RFI-9R was J-flagged due to MS/MSD recoveries being greater than the allowable performance criteria;
- Sulfate: Samples RFI-1, RFI-2, DUP-20171026 (field duplicate of RFI-2), RFI-9R was J-flagged due to MS/MSD recoveries being greater than the allowable performance criteria;

- Ferrous Iron: With the exception of the rejected ferrous iron samples stated above, all ferrous iron samples were either flagged as UJ or J as they were analyzed beyond the QAPP's "as soon as possible" holding time limit. In addition, the ferrous iron results for ICM-3, ICM-7, MH-1, N-42, I-2, DUP-20171027 (field duplicate of MW-103), and L-8 were U-flagged due to ferrous iron being detected in the method blanks at concentrations above the detection limit but below the reporting limit;
- Methyl tertiary butyl ether (MTBE): Samples L-34 and RFI-2 were UJ flagged due to low MS recoveries; and
- Benzene, toluene, ethylbenzene, xylenes (BTEX): Samples RFI-1, MW-103 and DUP-20171027 (field duplicate for MW-103) were either UJ or J-flagged due to low MS recoveries.

4.3 MNA DATA EVALUATION

A summary of laboratory and field analytical results from this monitoring period for BTEX, MTBE, and terminal electron acceptor/product (TEAP) parameters is presented in Table 4-2. A comprehensive summary of all historical laboratory and field analytical results from MNA program wells from previous MNA sampling events, the 1995 ICMI investigation, and the 1997 SV/RFI investigation are presented in Appendix C-1 and C-2. The results for benzene and total BTEX are also presented graphically in Figures 4-4 and 4-5, respectively. These figures present benzene and total BTEX results from this monitoring period, and include data from the 1995 ICMI, 1997 SV/RFI and October 2017 events for comparison purposes. The following sections summarize the MNA sampling program results.

4.3.1 BTEX

Concentrations of BTEX components have generally decreased or remained steady in the majority of monitoring wells over the past several years since the MNA monitoring program was initiated in 2000. This general trend of steady or decreasing concentrations is more pronounced when compared to the 1995 ICMI and 1997 SV/RFI results.

The perimeter wells continue to exhibit non-detect or minimal concentrations of BTEX. As presented in Table 4-2 and Appendix C-1, and as illustrated on Figures 4-3 and 4-4. Sampling results for benzene and total BTEX during 2017 continue these observed trends.

When the data from the 2017 sampling rounds were compared the historical results, the following is noted:

- N-45: Per the CMI Work Plan Addendum for Tank 41 (Area 1), monitoring well N-45, located downgradient of Tank 41 was to be monitored for any changes as a result of the excavation activities completed inside Tank 41's berm during August 2016. This well exhibited only trace detections of BTEX and MTBE during the July 2016 and October 2016 sampling events. In 2017, this well was non-detect for both BTEX and MTBE during the April 2017 and July 2017 sampling events. As no adverse changes to the downgradient groundwater was detected, no further sampling of N-45 is planned.
- KM-GP13 (located downgradient of Tank 50 [Area 2]): The total BTEX concentration for the October 2017 sampling round was 2,420 micrograms per liter (µg/L), which represents an increase from the 2016 detection of 2,070 µg/L; however, this well has been experiencing an overall decreasing trend since monitoring was initiated in 2004.
- RW-1A (located in the area of MW-100 [Area 3]): The total BTEX concentration for the October 2017 sampling round was 3,400 µg/L, which represents an increase from the 2016 detection of 1,810 µg/L; however, this concentration is lower than historical concentrations (up to 11,000 µg/L).
- ICM-7 (located in the area of the Bulkhead Area [Area 4]): Total BTEX and MTBE concentrations continue to remain at non-detect, to only trace concentrations. Total BTEX was 12.5 µg/L and MTBE was non-detect.
- MW-113 (located downgradient of the Boiler House [Area 5]): The total BTEX concentration for the October 2017 sampling round was 8,840 µg/L which represents a slight decrease from the October 2016 detection of 9,890 µg/L; however, there has been a general increasing trend over the past 10 years.

- KM-GP05 (located downgradient of the Former Lube Tanks [Area 6]): The total BTEX concentration for the October 2017 sampling round was 6,392 µg/L, which represents a decrease from the October 2016 detection of 11,620 µg/L. This location has been experiencing an overall decreasing trend since monitoring was initiated in 2004.
- RFI-9R (located in the area of the Siphon Buildings / Former OWS [Area 7]): Total BTEX and MTBE concentrations continue to remain at non-detect to only trace concentrations. Total BTEX was 1.1 µg/L and MTBE was 0.80 µg/L (estimated).

To statistically evaluate the observed trends in BTEX concentrations at the Site, historical and current monitoring results were analyzed using Mann-Kendall statistics. In addition, natural attenuation rates for BTEX compounds in half-lives were calculated using time-series data and first order decay rates. The results of these evaluations are described in the following sections.

4.3.1.1 Mann-Kendall Statistical Evaluation of Trends

Mann-Kendall is a non-parametric test that can be used to assess whether concentrations observed in groundwater exhibit increasing or decreasing trends over time to a specified level of significance. This analysis was performed for BTEX constituents in MNA program wells with four or more historical benzene detections greater than 5 µg/L. Mann-Kendall statistics were calculated using GSI Mann-Kendall Toolkit for Quantitative Analysis of Plume Concentration Trends (GSI Environmental 2013©). This software provides a statistical trend analysis of groundwater data which is capable of incorporating up to 40 sampling events.

The Mann-Kendall statistic (S) indicates a decreasing trend if negative, and an increasing trend if positive. The "Confidence in Trend" indicates the statistical significance of the "S" value. If two wells have the same S, but one has more sampling events, the one with the least number of sampling events will have the highest confidence. The Toolkit program assumes a trend only if >90% confidence. It uses the coefficient of variation (COV) to assess whether a plume with no trend is stable.

The decision matrix is:

Mann-Kendall Statistic	Confidence	Trend
S>0	>95%	Increasing
S>0	90 to 95%	Probably Increasing
S>0	<90%	No Trend
S<0	<90%, COV>1	No Trend
S<0	<90%, COV<1	Stable
S<0	90-95%	Probably Decreasing
S<0	>95%	Decreasing

Details of the Mann-Kendall statistical test for each well are presented in Appendix D. A summary of results from this statistical test is included as Table 4-3.

As indicated in Table 4-3, most of the MNA program wells exhibit a stable, decreasing, or no trend in BTEX concentrations. Contaminant trends from 2012 through 2017 were used as part of the evaluation process. The following increasing concentration trends are noted and discussed below:

- Well N-42 exhibited a statistical increasing concentration trend for ethylbenzene for 2016, however, this result is anomalous as the ethylbenzene concentration for all four quarterly sampling rounds completed in 2017 were non-detect. Furthermore, the ethylbenzene concentration has been very low (between non-detect and 1.6 µg/L) for all sampling rounds since January 2012. This anomaly is associated with the way the Mann-Kendall statistical test processes non-detected concentrations.
- Since 2012, MW-113 showed a statistical increasing trend for one or more BTEX compounds. For the 2017, benzene, ethylbenzene and total BTEX exhibited an increasing statistical trend, while toluene exhibited a decreasing statistical trend and xylenes did not exhibit a trend. Analytical results for MW-113 will continue to be closely monitored during future events to further evaluate concentration trends at this and other locations. The observed trends in MW-113 are discussed in more detail in Section 4.4.

4.3.1.2 Natural Attenuation Rates

To quantitatively evaluate the trends in BTEX concentrations, the apparent rates of natural attenuation in half-lives were estimated based on linear regression analysis of time-series data. These attenuation rates were estimated for each BTEX compound detected in the MNA wells that exhibited a stable or decreasing trend using the Mann-Kendall statistical tests as described above (e.g., some MW-113 data were excluded due to an increasing trend).

Apparent natural attenuation rates were estimated using time-series data and assuming a first order decay of concentration over time:

$$C_t = C_0 * e^{-kt}$$

where:

C_0 = initial concentration

C_t = concentration at time t in years

t = time in years

k = apparent first order rate constant ($year^{-1}$)

To estimate k from time-series data, this equation can be rearranged to:

$$\ln(C_t/C_0) = -kt$$

where k is the slope of the line defined by $\ln(C_t/C_0)$ versus t and can be determined using linear regression techniques. An apparent half-life ($t_{1/2}$) was then calculated using:

$$t_{1/2} = -\ln(0.5)/k$$

where $t_{1/2}$ is the time at which C_t will equal 0.5 x C_0.

The results of these analyses for each MNA well are presented in Appendix E. A summary of first order decay rate constants and half-lives for each BTEX compound from each MNA well evaluated is presented in Table 4-4. As summarized in Table 4-4, the average apparent half-lives were 4.2 years for benzene, 7.6 years for toluene, 4.7 years for ethylbenzene, and 6.6 years for total xylenes. The overall total BTEX half-life was estimated at 4.3 years. Due to the fluctuations in concentrations observed over time, the natural attenuation rates calculated and presented here are considered estimates only. When the 2016 and 2017 data are compared, the half-life concentrations remained generally constant. Between 2016 and 2017, benzene's calculated half-live decreased from 4.4 years to 4.2 years; toluene's half-life remained unchanged at 7.6 years; ethylbenzene's half-life increased from 4.6 years to 4.7 years; total xylene's half-life increased from 6.2 years to 6.6 years; and the half-life for total BTEX increased from 4.1 years to 4.3 years. Additional monitoring data from future MNA events will be incorporated into these estimates, and these calculations will continue to be refined with new estimates reported in future annual progress reports.

4.3.1.3 Comparison of BTEX Compound Concentrations to GCOs

In accordance with the Order, the approved CMS Report (April 30, 2012, revised June, 14, 2013) established groundwater cleanup objectives (GCOs) for perimeter groundwater to be protective of aquatic life in the Arthur Kill River. The Facility perimeter was defined as the downgradient portion of the Facility within 150 feet of the Arthur Kill River shoreline (see Figure 4-3), within which are current MNA monitoring wells ICM-1, ICM-3, ICM-5, ICM-7, ICM-9, ICM-10, L-2, L-8, MW-117, MW-118, MH-1, N-42, RFI-8R, RFI-9R, and RFI-11. Although further than 150 feet from the river, well I-3 is also conservatively considered a perimeter well because it is downgradient of Facility operations and there are no other monitoring wells closer to the river in this area of the Facility.

Table 4-5 presents a comparison of 2017 monitoring results for benzene, toluene, ethylbenzene and xylenes and MTBE against applicable GCOs for these perimeter monitoring wells. As presented in Table 4-5, no individual BTEX compounds or MTBE constituents detected during this monitoring period exceeded applicable GCOs.

4.3.1.4 Summary of BTEX Evaluation

As indicated by the Mann-Kendall statistical evaluations for 2017 summarized in Table 4-3, and statistical evaluations conducted since 2012, the majority of BTEX concentrations across the Site display generally decreasing trends. As illustrated in Figures 4-4 and 4-5, the orders of magnitude for attenuation of BTEX over short distances downgradient of higher concentration zones is further indication of the substantial effects of the natural attenuation processes. In addition, consistent non-detections or minimal perimeter detections indicate that identified plumes continue to shrink or remain stable. Calculation of the natural attenuation rates for stable or attenuating plumes provides quantitative estimates of the degree to which natural attenuation of BTEX compounds is occurring at the Site. Overall, the sum of these lines of evidence demonstrates that natural attenuation processes continue to effectively address dissolved-phase concentrations across the Facility.

The data from 2013 through 2017 indicate groundwater samples from perimeter monitoring wells are in compliance with GCOs for BTEX established in the approved CMS report (2013). Groundwater monitoring across the Site also demonstrates that most contaminant plumes continue to shrink and decrease in concentration consistent with the requirements of the Order for non-perimeter groundwater. Areas of the Site where elevated, increasing, or long duration stable concentrations of BTEX compounds have been observed, such as from MW-113 (Boiler House) during 2012 through 2017, RW-1A and L-28 (located in the vicinity of MW-100), KM-GP05 (Former Lube Tank) and KM-GP13 (Tank 50), will continue to be monitored to further evaluate the nature of these trends. These areas are further discussed in Section 4.4 and are slated for hot spot remediation to accelerate the reduction of COCs.

4.3.2 Terminal Electron Acceptor/Product (TEAP) Parameters

In addition to monitoring BTEX concentrations in groundwater, the progress of natural attenuation can be further evaluated by monitoring terminal electron acceptor/product (TEAP) parameters and the relationship between TEAP and BTEX concentrations. The TEAP parameters monitored during the MNA program include nitrate, sulfate, ferrous iron, dissolved oxygen, carbon dioxide, and methane. The TEAP parameters are included with the suite of analytical parameters during the fourth quarterly annual sampling round. A summary of TEAP parameter results from the October 2017 sampling event is included in Table 4-2.

As described in detail in the initial draft CMS Report submitted in April 2002, the concentrations of oxygen, nitrate, and sulfate (terminal electron acceptors) should be lower in areas of high BTEX concentrations than in non-impacted areas. Likewise, concentrations of methane and soluble ferrous iron (terminal electron acceptor products) should be higher within the BTEX plume than in non-impacted areas. In general, these relationships between BTEX and TEAP concentrations were observed as expected at the Site.

However, several wells did not show the expected relationship. In these downgradient wells, low terminal electron acceptor concentrations and elevated concentrations of terminal electron acceptor products were found despite low or undetected BTEX concentrations. This result is due to the biodegradation of BTEX in upgradient areas and the migration of the resulting TEAP concentrations downgradient (also referred to as a “shadow effect”) and is consistent with an on-going

natural attenuation process. The BTEX concentrations in groundwater and their relationship to TEAP parameters has been generally following three types of scenarios as discussed in the remainder of this section.

SCENARIO 1: The TEAP results from the October 2017 sampling event continue to support the general trends reported in the initial 2002 draft CMS Report and previous MNA monitoring reports. Groundwater sampled from upgradient site-border wells and from relatively non-impacted wells, continues to exhibit relatively high concentrations of dissolved oxygen (> 1.0 – 2.0 milligrams per liter [mg/L]), and modest to high levels of nitrate and/or sulfate, while concentrations of methane and ferrous iron are generally low or below detection limits. This scenario is best demonstrated in the following wells:

- I-1
- MW-107
- MW-110
- MW-112
- MW-114
- N-42
- N-43
- RFI-1
- RFI-2
- RFI-9R
- RFI-11

SECENARIO 2: As this upgradient groundwater encounters areas of moderate to high BTEX concentrations, biodegradation results in the consumption of oxygen, nitrate, and sulfate (with the resulting decrease in concentration of these terminal electron acceptors) and in the production of the terminal electron acceptor products, ferrous iron and methane (with the resulting increase in these concentrations). The October 2017 TEAP results generally continue to show the expected relationship between BTEX and TEAP concentrations in monitoring wells with the highest BTEX concentrations, and is best demonstrated in the following wells during October 2017:

- I-6
- ICM-6
- KM-GP05
- KM-GP13
- MW-103
- MW-111
- MW-113
- MW-116
- RFI-4
- RW-1A

SCENARIO 3: As previously discussed, the initial 2002 draft CMS Report identified many monitoring wells at which a "shadow effect" was suspected. Concentrations of BTEX from these wells were relatively low or not detected, however the TEAP constituents had not yet rebounded from the upgradient degradation processes. Groundwater results from the October 2017 event indicate that TEAP parameters and low BTEX concentrations generally continue to reflect a potential "shadow effect" at the following wells:

- ICM-1
- ICM-5
- I-2
- I-3
- I-5
- MW-109
- MW-117
- MW-118
- L-2
- L-34
- RFI-8R
- MH-1R

The remaining MNA monitoring wells at the Site (OW / MW-3, ICM-3, ICM-7, ICM-9, ICM-10, L-8 and RFI-7) exhibit relatively low concentrations of BTEX with minor or no signs of TEAP parameter concentration trends. Results from October 2017 suggest that while a minor "shadow effect" and/or BTEX degradation may be taking place at some of these locations, these wells are generally far enough downgradient or side gradient from impacted areas to be unaffected.

4.3.3 Assimilative Capacity of Aquifer

Assimilative capacity is a measure of an aquifer's potential to biodegrade hydrocarbons based on terminal electron acceptor (TEA) and TEAP concentrations. Calculation of the assimilative capacity for the Site is described in detail in the initial 2002 draft CMS Report based on the results of the four initial MNA sampling events. The calculations performed in the initial 2002 draft CMS Report yielded an assimilative capacity of approximately 22 mg/L. When including the results

of subsequent MNA sampling performed to date in the calculations described in the initial 2002 draft CMS Report (see Table 4-6), including data from October 2017, an assimilative capacity of approximately 18.4 mg/L is estimated. This calculated capacity indicates that the aquifer has enough electron acceptors to completely biodegrade an average of 18.4 mg/L of BTEX constituents.

The calculated assimilative capacity value should be considered highly conservative and underestimates the true assimilative capacity of the aquifer. All the sources and sinks of TEAs and TEAPs, respectively, are not accounted for in these calculations and the estimate assumes that all of the BTEX is completely oxidized to carbon dioxide and water, when in fact only about half is typically completely oxidized with the rest incorporated into microbial biomass. Thus, it is likely that the true assimilative capacity exceeds 40 mg/L. These updated calculations continue to show that the aquifer has a very high capacity to biodegrade BTEX constituents, reinforcing the fact that biodegradation is the mechanism accounting for the stable or shrinking BTEX plume and is responsible for removal of substantial quantities of BTEX from the subsurface.

4.3.4 MTBE

In addition to BTEX and natural attenuation parameters, monitoring wells sampled during the MNA events were also analyzed for MTBE. These results are included in Table 4-2. Concentrations of MTBE during this monitoring period ranged from non-detect (less than 0.13 µg/L) to 230 µg/L. Comparison of MTBE results during this monitoring period from perimeter monitoring wells were compared to applicable GCOs (see Table 4-5) with no exceedances.

Although the body of historical data for MTBE is smaller relative to BTEX data for the Site, enough data has been obtained from most wells to evaluate trends in MTBE concentrations using Mann-Kendall statistics. As summarized in Table 4-3, with one exception (ICM-7), all 24 wells that had enough data to perform this statistical evaluation showed a stable, decreasing, or no trend in MTBE concentrations.

The Mann-Kendall analysis indicated a probable increasing trend for MTBE at ICM-7; however, this result is anomalous as the MTBE concentration reported was non-detect. Of the 14 sampling events in which MTBE was analyzed for since 2005, nine of them had a non-detect MTBE result. This anomaly is associated with the way the Mann-Kendall statistical test processes non-detected concentrations.

Potential trends in MTBE concentration will continue to be evaluated as a larger set of data is accumulated during future MNA events.

4.3.5 PAHs

Although monitoring for PAHs has not been part of the MNA program since 2004, a supplemental groundwater monitoring event was conducted in March 2012 from select perimeter monitoring wells as detailed in the Annual Monitoring Report for 2012. This supplemental monitoring was conducted to further evaluate total and dissolved PAHs in perimeter groundwater in light of the proposed GCOs proposed in the CMS Report. Since the final CMS Report and associated perimeter groundwater GCOs have since been approved, these 2012 groundwater results for PAHs are being re-presented in Table 4-7 and compared to applicable GCOs. As indicated in Table 4-7, the only PAH exceeding its respective GCO, where established, was total benzo(a)pyrene from ICM-9 at a concentration of 6 µg/L versus its GCO of 2.4 µg/L. A filtered sample collected from ICM-9 for analysis of dissolved PAHs, however, did not contain a detectable concentration of benzo(a)pyrene. Because PAHs do not readily dissolve in water, the total concentrations detected in the unfiltered samples are likely due to suspended solids. Therefore, the filtered analysis results for dissolved PAHs are lower and more representative of groundwater quality discharging to the Arthur Kill River.

It should be noted that, as discussed in the CMS Report, although no GCOs are presented for six of the 18 PAHs due to the lack of water quality standards or other aquatic life criteria, application of, and compliance with, the GCOs for the remaining thirteen PAHs should be sufficiently protective of surface water for these COCs since PAHs exhibit a common mode of action with additive effects and almost always occur together.

4.4 HOT SPOT AND PERIMETER MONITORING RESULTS

Hot spot and perimeter monitoring is performed in conjunction with the MNA program to monitor existing and previous ICMs, the downgradient property boundaries, and other Remediation Area hot spots (identified in the CMI Work Plan), in addition to monitoring the Facility for unidentified and/or migrating releases. The hot spot and perimeter monitoring program includes the monitoring of BTEX concentrations and liquid levels from the MNA well network, and is augmented by liquid level gauging performed during existing MOSF and ICM monitoring programs being performed monthly at the Site. Results from the hot spot and perimeter monitoring program and MNA groundwater sampling are used to continually re-evaluate risk assessment conclusions and determine the potential need for additional hot spot remediation at the Facility.

The previous section presented a summary and evaluation of groundwater analytical results. Statistical evaluation of these analytical results show that, in general, dissolved contaminant concentrations in groundwater at the Site have attenuated or remained stable. Also, perimeter wells have exhibited non-detect or minimal concentrations of dissolved constituents. Most areas of higher concentration continue to be addressed by monitored natural attenuation as a viable corrective action and do not require active remediation. However, several areas have been identified by hot spot and perimeter monitoring between 2012 and 2017 where increased monitoring and/or potential hot spot remediation has been recently initiated or may be warranted in the future.

4.4.1 MW-113 / Boiler House Area (Area 5)

Historical groundwater sampling at monitoring well MW-113 has identified statistically increasing benzene, ethylbenzene and total BTEX trends. Well MW-113 is located in the Boiler House area where several historical spills have occurred. As presented in the final CMS Report dated April 30, 2012 (revised June, 14, 2013) an ISCO pilot test was conducted in this area in spring/summer 2011 to evaluate the effectiveness of an ISCO approach to remediate the Boiler House area as a hot spot; however, during this event product was identified in pilot test wells SVE-BH-1 and SVE-BH-2.

Between September 2015 and January 2016, Louis Berger implemented a field program to delineate the identified product. This field program consisted of soil borings for the collection of soil samples, and installation of temporary well points (TWPs) to allow for visual inspection of product and subsequent groundwater sampling. The results of the Product Delineation Investigation (PDI) investigation identified two separate zones where product was present. These areas include the following:

- #4 fuel oil product area located near the northwest corner of the Boiler House; and
- Gasoline/#2 fuel oil product area located northeast of the Boiler House Area.

This work was performed to collect additional pre-design data that culminated with the submission of the USEPA-approved CMI Work Plan Addenda for this area. The planned remediation will include excavation, ISCO and bioremediation. Remedial activities are planned for 2019. In the meantime, wells SVE-BH-1 and SVE-BH-2 continue to be monitored twice monthly and monitoring well MW-113 sampled quarterly.

4.4.2 North Beach / MW-100 Area / MW-103 (Area 3)

As described in detail in the revised CMS Work Plan, product has been detected in several wells in the North Beach Area (including MW-102, RFI-7, and MW-100) for several years. Measurable product continued to be detected in monitoring wells from this area between January and December 2016, particularly from MW-100 (see Table 3-2). Table 3-3 shows that approximately 2,520 gallons of product has been removed to date via ICMs in this area, predominately from MW-100 where a Spill Buster System was installed in November 2015 to automate product recovery. Product levels in MW-102 and RFI-7 are sporadic and/or not consistently recoverable by an automated system; however, product in these wells is removed manually during ICM visits, as warranted.

Between September 2016 and February 2017, Louis Berger implemented a field program to delineate the identified product in this area. This field program consisted of soil borings and installation of TWPs to allow for visual inspection of product.

The results of the PDI investigation identified four separate zones where product was present. These areas include the following:

- Product Zone 1: Area encompassing monitoring well MW-100;
- Product Zone 2: Area encompassing boring location/new recovery well A3-3/RW-8;
- Product Zone 3: Area encompassing RFI-7; and
- Product Zone 4: Area between Tanks 9 and 10.

Further, it has been determined that this product is the likely source of the BTEX groundwater impacts identified at monitoring wells RW1A and MW-103, both located downgradient of MW-100.

This work was performed to collect additional pre-design data that culminated with the submission of the USEPA-approved CMI Work Plan Addenda for this area. The remedial approach involves the use of surfactant flushing to remove the product and bioremediation to address groundwater impacts being identified at monitoring wells RW1A and MW-103. Remedial activities are planned for 2019. In the meantime, liquid levels in this area will continue to be monitored on a twice-monthly basis under the ICM O&M program, with continued product recovery from MW-100 and other monitoring wells, as warranted. In addition, monitoring of downgradient wells will continue on a quarterly basis to track trends and potential product migration of product. Automated product recovery in MW-100 resumed on November 18, 2015 following the re-installation of a Magnum Spill Buster system. In addition, product removal has been conducted at MW-102 and RFI-7 via manual methods (e.g., absorbent socks), as warranted.

The following table summarizes the approximate estimated yearly product recovery amounts for MW-100.

Year	Est Gallons Product removed	Comments
2017	103.6	Automated product removal
2016	47.1	Manual/automated product removal
2015	19.1	Manual/automated product removal (Spill Buster re-installed November 18, 2015)
2014	3.9	Manual product removal
2013	2.4	Manual product removal
2012	34	Manual/automated product removal (Spill Buster removed July 18 2012)
2011	133.8	Automated product removal
2010	109.8	Automated product removal
2009	120.6	Automated product removal
2008	85.9	Automated product removal
2007	244.3	Automated product removal
2006	260.85	Automated product removal
2005	270	Automated product removal
2004	388	Automated product removal
2003	676.75	Automated product removal (Spill Buster installed May 22, 2003)

4.4.3 Northern Bulkhead / ICM-1 Area

As described in detail in the CMS Work Plan, former product releases in the northern bulkhead area in February 2001 and April 2007 have resulted in the periodic presence of product and elevated BTEX concentrations in monitoring well ICM-1 located along the Arthur Kill River on the northwest edge of the Site (Figure 1-2). Emergency response activities removed approximately 15,419 gallons of product in 2007. Active ICMs in this area, including a prior automated product recovery via a Spill Buster, have resulted in the removal of an additional 15.2 gallons of product from ICM-1 to-date (Table 3-3). Sustained recoverable product has not been present in ICM-1 since April 2008. During 2016, measureable product thicknesses beyond a sheen were not observed. Therefore, active recovery equipment has not been installed at this location. Intermittent sheens and low concentrations of total BTEX (1.91 µg/L in October 2016) continue to be detected in groundwater from ICM-1; however, statistical analytical trends have been decreasing for 2012 through 2017.

Liquid levels at ICM-1 will continue to be monitored on a twice-monthly basis under the ICM O&M program, with manual product recovery performed as warranted. As allowed by product levels, ICM-1 will also continue to be sampled on a quarterly basis under the MNA program to monitor dissolved concentration trends at this location. Should conditions change, warranting additional action, any proposed investigation or remedial measures will be presented in subsequent Quarterly or Annual Progress Reports and/or the CMI Work Plan.

4.4.4 Bulkhead Area (Area 4)

As described in detail in the draft revised CMS Work Plan, product in the Bulkhead Area was originally detected in wells LC-1 and LC-2 upon installation as part of the 1997 ICMI. As a result of that investigation, a Thermal Enhanced Product Recovery System was installed as an ICM to address the presence of product in this area. The Bulkhead Area system consists of buried steam loops to lower the viscosity of the product, and three combination interceptor trenches/recovery wells (RW-1, RW-2, and RW-3) located parallel to the bulkhead to capture the product for recovery.

Table 3-3 shows approximately 111 gallons of product has been recovered to date from Bulkhead Area wells through automated system recovery and manual methods. However, none of the three recovery wells have shown recoverable product over the past several years. During 2017, with the exception of a single 0.01 foot product measurement at monitoring well TMP-1 on August 4, 2017, no product greater than a sheen was observed in any Bulkhead Area wells. Currently, the steam loops and a Scavenger pump are in storage/standby, but can be added to any of the recovery wells upon detection of product in those wells. Manual recovery of product will continue to be performed from monitoring wells in the Bulkhead Area as warranted. Should conditions change, warranting additional action, a proposed investigation or remedial measures will be presented in subsequent Quarterly or Annual Progress reports and/or a CMI Work Plan addenda.

4.4.5 Lube Tank / KM-GP05 Area (Area 6)

Geoprobe® microwell KM-GP05 was installed downgradient of the former Lube Tank Area during supplemental investigation activities conducted at the Site in August 2004. This microwell was subsequently added to the MNA program on a semi-annual basis due to elevated BTEX concentrations in soil and groundwater at this location. Historical total BTEX concentrations in groundwater samples from KM-GP05 (approximately 30 sampling events) have ranged from 5,920 µg/L to 32,200 µg/L. Total BTEX continues to be elevated with concentrations between 6,392 µg/L and 7,950 µg/L reported during 2017 MNA events; however, Mann-Kendall statistics indicate a decreasing trend for each BTEX compound. Although BTEX concentrations from KM-GP05 appear to be naturally attenuating, this area was identified by the Order as an area requiring additional hot spot remedial measures due to the high BTEX concentrations present in soil and groundwater.

As presented in the final CMS Report dated April 30, 2012 (revised June, 14, 2013), an ISCO pilot test was conducted in this area during spring/summer 2011 to evaluate the effectiveness of an ISCO approach to remediate the Boiler House area as a hot spot; however, during this event measureable product was identified in wells MW-LT-2 and MW-LT-3. As a result, Louis Berger implemented a field program to delineate the identified product. This field program consisted of soil borings for the collection of soil samples and installation of TWPs to allow for visual inspection of product and subsequent groundwater sampling. The results of the PDI investigation identified an approximate 6,205 square foot area where a

mixture of kerosene and #2 fuel oil was present. This delineation work was performed to collect additional pre-design data that culminated with the submission of the USEPA-approved CMI Work Plan Addenda for this area, which selected excavation, ISCO and bioremediation as the remedial approach.

Between November 6, 2017 and January 3, 2018, implementation of the USEPA-approved corrective measures at Area 6 (Former Lube Tanks) were undertaken. Initially, the overburden soils above the smear-zone were excavated by Innovative Recycling Technologies, Inc. (Innovative), of Lindenhurst, NY, and screened with a PID by Louis Berger personnel. Soils that exhibited PID readings greater than 50 ppm were separated from the soils that were screened at 50 ppm or less and showed no visual or olfactory signs of contamination. The smear-zone soils were then excavated and stockpiled with the soils that were screened over 50 ppm. The smear-zone soils and soils screened at over 50 ppm were sampled for waste classification parameters then trucked off-Site under manifest to Bayshore Recycling Corporation (Bayshore) of Keasbey, NJ for disposal. Soils that exhibited PID readings 50 ppm or less and showed no visual or olfactory signs of contamination were kept for reuse. In total, 971.25 tons of impacted soils were transported offsite for disposal as petroleum-impacted waste. Following excavation, 13,260 pounds of sodium persulfate along with 4,080 pounds of FeEDTA, was prepared in batches in and applied to the open excavation by Summit Drilling of Bound Brook NJ (Summit). The saturated zone of the excavation was then backfilled with ¾-inch washed, crushed stone mixed with 1,873.4 pounds of Oxygen-Releasing Compound-Advanced (ORC-A). The stockpiled soil less than 50 ppm was then used to backfill the remaining portion of the excavation, and the surface of the work area was restored with 1.5-inch stone.

Future plans include the installation of two new monitoring wells in this area document contaminant degradation. In addition, BTEX concentrations in KM-GP05 will continue to be monitored on a semi-annual basis to further evaluate concentration trends at this location.

Complete details of the corrective measures completed in the Former Lube Tanks area will be included in the CMI Report.

4.4.6 Tank 50 / KM-GP13 Area (Area 2)

Another microwell installed during the August 2004 supplemental Geoprobe® investigation was KM-GP13 which is located downgradient of Tank 50. This microwell was also added to the MNA sampling program on a semi-annual basis due to elevated BTEX concentrations in groundwater at this location. Based on 31 sampling events, historical total BTEX concentrations in groundwater from KM-GP13 have ranged from 780 µg/L to 69,600 µg/L. Total BTEX continues to be elevated with concentrations between 860 µg/L and 2,420 µg/L reported during the April and October 2017 MNA events, respectively. This represents a continual decreasing concentration trend, and, Mann-Kendall statistics indicate a decreasing BTEX concentrations between 2013 and 2017. Although BTEX concentrations from KM-GP13 appear to be naturally attenuating, this area was identified by the Order as a location requiring additional hot spot remedial measures due to the high historical BTEX concentrations detected in groundwater.

As presented in the CMS Report, a screening-level subsurface investigation was conducted in July 2010 and an ISCO pilot test was conducted in this area during the summer of 2012 to evaluate the effectiveness of this remedial alternative to remediate the Tank 50 Area as a hot spot. Unfortunately, the July 2010 subsurface investigation failed to identify the source of the impacts. Because of this, between November 2016 and December 2016, Louis Berger implemented a field program with the goal to identify the source of the groundwater BTEX impacts. This field program consisted of soil borings, installation of TWPs to allow for the visual inspection of product and subsequent groundwater sampling. Results of this investigation identified product to be present within and extending outside of Tank 50's diked area. This work was performed to collect additional pre-design data that culminated with the submission of the USEPA-approved CMI Work Plan Addendum for this area. The proposed remediation involves the use surfactant to remove the identified product, which is planned for 2018.

In the meantime, BTEX concentrations in KM-GP13 will continue to be monitored on a semi-annual basis to further evaluate concentration trends at this location.

4.5 CONCLUSIONS FROM MNA MONITORING PROGRAM

The BTEX results from January, April, July, and October 2017 support the conclusion that, in general, the areal extent of groundwater impacts at the Facility are limited, displaying relatively rapid attenuation with distance from the presumed source areas. With a few noted exceptions, statistical analysis of historical and current analytical results generally shows that BTEX and MTBE concentrations at the Site are decreasing or stable. Calculated first-order decay rates indicate average half-lives ranging between 4.2 and 7.6 years for individual BTEX constituents, with an overall total BTEX half-life of 4.3 years. Furthermore, the TEAP and assimilative capacity results from these events continue to demonstrate that biodegradation is a very important natural attenuation mechanism and likely accounts for the concentration reductions over distance and time observed. The data from the 2017 monitoring program continue to support a program of close monitoring during future MNA events at several areas (e.g., MW-103 and MW-100 [North Beach area], MW-113 [Boiler House area], ICM-1 [Northern Bulkhead area], KM-GP05 [Former Lube Tank area], and KM-GP13 [Tank 50 area]); however, overall results from the MNA program clearly show continued containment of the plumes while also showing mass removal through natural attenuation.

Currently, groundwater sampling results from perimeter monitoring wells are in compliance with the GCOs (established in the approved CMS report) for BTEX, MTBE, and PAHs. Groundwater monitoring throughout the Site also demonstrates that most contaminant plumes continue to shrink and decrease in concentration consistent with the requirements of the Order for non-perimeter groundwater. Areas of the Site where increasing concentrations of BTEX compounds have been observed (e.g., MW-113), will continue to be monitored to further evaluate the nature of these trends. In addition, remedial efforts in accordance with the USEPA-approved CMI Work Plan are being implemented. Finally, product recovery efforts in the area of MW-100 (where the Spill Buster product recovery system is currently in operation) will continued to be monitored and maintained.

Hot spot and perimeter monitoring performed in conjunction with the MNA program has been very effective in monitoring existing and previous ICMs. It has also been effective in monitoring the downgradient property boundaries, and other Remediation Area hot spots identified in the ICMI and SV/RFI reports, and the Facility itself for unknown and/or migrating releases.

The observation of increasing BTEX and indicator TEAP results identified several years ago as precursor to the detection of product in ICM-1 demonstrates the effectiveness of this program to monitor the downgradient property boundaries and previously identified releases. The product recovery activities conducted since the discovery of product in RFI-7 and MW-100, and the detection of elevated BTEX concentrations in RFI-8, KM-GP05, and KM-GP13, demonstrates the effectiveness of the MNA program to:

- Monitor the progress of natural attenuation at the Site;
- Identify potential hot-spots, and
- Implement remedial measures as necessary.

In summary, this program continues to be beneficial and allows timely reaction to groundwater concerns with appropriate investigative and remedial measures on an on-going basis.

5. PROPOSED ACTIVITIES

Recently-completed and proposed activities for the next 90 days (First quarter 2018) pursuant to the Order include the following:

- A quarterly MNA monitoring event scheduled for January 2018 has been completed. The next MNA groundwater sampling event is scheduled for April 2018.
- Louis Berger and Kinder Morgan's consultant (Tetra Tech), will continue monitoring and recovery activities in the vicinity of recovery well RW-5 and MW-100; and at ICM-1, to further address the product in these areas. Tetra Tech will also perform O&M activities at MW-100.
- The next Quarterly Progress Report is due by May 15, 2018.

A progress summary of the required tasks pursuant to the Order in terms of approximate percent complete is presented below.

- CMS Work Plan - 100%
- CMS Field Activities and Pilot Test - 100%
- CMS Report - 100%
- USEPA Statement of Basis – 100%
- CMI Work Plan – 100%
- Corrective Measure Implementation:
    - Area 1 (Tank 41) – 100%
    - Area 2 (Tank 50) – 0%
    - Area 3 (North Beach / MW-100 Area) – 0%
    - Area 5 (Boiler House) – 0%
    - Area 6 (Former Lube Tanks) – 95%
    - Area 7 (Siphon Building/OWS) – 0%
- CMI Report – 0%
- Surface Impoundment Decommissioning and Investigation – 100%
- Tank Farm Investigation (upon decommissioning or replacement) – 0%
- ICM Monitoring, Operations, and Maintenance – on-going
- MNA Groundwater Monitoring Program – on-going
- Quarterly and Annual Progress Reporting – on-going

6. REFERENCES

Baedecker, M. J., I. M. Cozzarelli, R. P. Eganhouse, D. I. Siegel and P. E. Bennett. 1993. Crude Oil in a Shallow Sand and Gravel Aquifer - III. *Biogeochemical Reactions and Mass Balance Modeling in Anoxic Groundwater*, Applied Geochemistry, 8:569-586.

Barker, J. F., G. C. Patrick and D. Major, 1987. *Natural Attenuation of Aromatic Hydrocarbons in a Shallow Sand Aquifer*. Ground Water Monitoring Review 7: 64-71.

Chiang, C. Y., J. P. Salanitro, E. Y. Chai, J. D. Colthart, and C. L. Klein. 1989. Aerobic Biodegradation of Benzene, Toluene and Xylene in a Sandy Aquifer - Data Analysis and Computer Modeling. Ground Water 27:823-34

Fluor Daniel GTI, Inc. April 17, 1997a. Interim Corrective Measures Investigation Report. Port Mobil Terminal, Staten Island, New York.

Fluor Daniel GTI, Inc. July 2, 1997b (revised June 18, 1998). RCRA Facility Assessment Sampling Visit/RCRA Facility Investigation (SV/RFI) Draft Report. Port Mobil Terminal, Staten Island, New York.

Fluor Daniel GTI, Inc. December 1998. Risk Assessment. Port Mobil Terminal, Staten Island, New York.

Louis Berger. November 2014 – November 2015. Quarterly Progress Reports. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Louis Berger. July 2017. *Corrective Measures Implementation Work Plan (Updated)*. Kinder Morgan Staten Island Site (Former Port Mobil Terminal). Staten Island, New York.

Lovley, D. R., J. D. Coates, J. C. Woodward, and E. J. P. Phillips. 1995. *Benzene Oxidation Coupled to Sulfate Reduction*. Applied and Environmental Microbiology, 61:953-958.

Lovley, D. R., J. C. Woodward and F. H. Chappelle. 1994. *Stimulated Anoxic Biodegradation of Aromatic Hydrocarbons Using Fe(III) Ligands*. Nature, 370:128-131.

Mace, R. E., R. S. Fisher, D. M. Welch and S. P. Parra. 1997. *Extent, Mass and Duration of Hydrocarbon Plumes from Leaking Petroleum Storage Tank Sites in Texas*. The University of Texas at Austin, Bureau of Economic Geology, Geological Circular 97-1, Austin, TX.

Major, D. W., C. J. Mayfield and J. F. Barker. 1988. Biotransformation of Benzene by Denitrification in Aquifer Sand. Ground Water, 26: 8-14.

Rice, D. W., R. D. Grose, J. C. Michaelson, B. P. Dooher, D. H. MacQueen, S. J. Cullen, W. E. Kastenberg, L. G. Everett and M. H. Marino. 1995. *California Leaking Underground Fuel Tank (LUFT) Historical Case Analysis*, "UCRL-AR-122207", Lawrence Livermore National Laboratory, Livermore, CA.

Rifai, H. S., P. B. Bedient, J. T. Wilson, K. M. Miller and J. M. Armstrong. 1988. *Biodegradation Modeling at an Aviation Fuel Spill Site*. J. Env. Engin., ASCE 114: 1007-1029.

USEPA. 1998. Monitored Natural Attenuation for Groundwater. EPA/625/K-98/001.

USEPA. April 21, 1999. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites. OSWER Directive 9200.4-17P.

USEPA, March 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. EPA 530/R-09-007.

Wilson, B. H., G. B. Smith, and J. F. Rees. 1986. Biotransformation of Selected Alkylbenzenes and Halogenated Aliphatic Hydrocarbons in Methanogenic Aquifer Material: A Microcosm Study, Env. Science Technol. 20: 997-1002.

Woodard & Curran. 2004 (Revised 2007). Revised RCRA Facility Assessment Sampling Visit/RCRA Facility Investigation Final Report. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. (June 2010). Revised Corrective Measures Study Work Plan. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. April 2002. RCRA Corrective Measures Study (CMS) Draft Report. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. 2001-2008. Monitored Natural Attenuation Program Reports for Years One through Nine. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. 2010-2013. Annual Progress Reports for 2009-2013. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. 2000-2010. SV/RFI Quarterly Progress Reports. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. 2000-2010. ICM Quarterly Progress Reports. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. 2011-2013. Quarterly Progress Reports. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. May 2014 and August 2014. Quarterly Progress Reports. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Louis Berger. January 2016. Quality Assurance Project Plan. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. January 2011. Bench Scale Investigation Report and Pilot Test Work Plan. Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York.

Woodard & Curran. April 30, 2012 (revised June 14, 2013). Corrective Measures Study (CMS) Report. Former Port Mobil Terminal, 4101 Arthur Kill Road, Staten Island, New York

Tables

Table 3-1a
ICM O&M Field Data - October 2017
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Field Personnel: Jon Byk, Priscilla Merta
Date: 10/23/17
Time: 9:00

Steam Loop	Temp (F)	Pressure (PSI)
SL-1:	NM	NM
SL-2:	NM	NM

Well ID	DTW	DTP	Removed (Gal)	Temp (C)	Temp (F)	Comments
LC-1	5.74	-	NA	20.2	68.4	
LC-2	8.23	-	NA	20.4	68.7	
L-29	9.49	-	NA	NM	NM	
RW-1A	10.81	-	NA	NM	NM	
RFI-7	10.12	10.03	0.07	NM	NM	10/06/17: DTW = 9.67, DTP = ND; 10/23/17: RP 50% Small Sock (0.07 Gal)
RFI-9R	1.35	-	NA	16.8	62.3	
MW-102	5.91	-	NA	NM	NM	10/06/17: DTW = 5.88, DTP = ND
MW-117	6.60	-	NA	NM	NM	
MW-118	9.56	-	NA	NM	NM	
ICM-1	6.15	-	0.01	NM	NM	10/06/17: DTW = 6.19, DTP = Heavy Sheen, RP 5% Large Sock (0.01 Gal)
ICM-3	7.83	-	NA	NM	NM	
ICM-7	7.42	-	NA	20.3	68.5	
ICM-10	3.28	-	NA	22.5	72.5	
TMP-1	6.65	-	NA	NM	NM	10/06/17: DTW = 6.41, DTP = ND, Temp = 70.8 F
TMP-2	6.68	-	NA	NM	NM	
TMP-3	6.33	-	NA	20.1	68.2	
RW-1	5.61	-	NA	19.7	67.5	
RW-2	5.90	-	NA	19.5	67.2	
RW-3	5.81	-	NA	19.4	67.0	
RW-4	4.85	-	NA	NM	NM	
RW-5	10.81	-	NA	NM	NM	
SVE-BH-1	5.28	Sheen	0.01	NM	NM	10/06/17: DTW = 5.00, DTP = Heavy Sheen, RP Trace Small Sock (<0.01 Gal); 10/23/17: RP 5% Small Sock (0.01 Gal)
SVE-BH-2	3.52	Sheen	0.01	NM	NM	10/06/17: DTW = 3.21, DTP = Heavy Sheen, RP Trace Small Sock (<0.01 Gal); 10/23/17: RP 10% Small Sock (0.01 Gal)
MW-LT-2	5.41	-	NA	NM	NM	10/06/17: DTW = 5.21, DTP = ND
MW-LT-3	4.58	-	NA	NM	NM	10/06/17: DTW = 4.34, DTP = ND
Tide	7.90	-	NA	NM	NM	10/06/17: DTW = 8.23 @ 11:05am; 10/23/17: 12:55pm

Notes:

DTW = Depth to Water (Feet)
DTP = Depth to Product (Feet)
NM = Not Measured
NA = Measurement not applicable for that well
ND = Not Detected
NM = Not Measured

Gal = Gallons
C = Celsius
F = Fahrenheit
PSI = Pounds per Square Inch

Table 3-1b
ICM O&M Field Data - November 2017
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Field Personnel: Jon Byk, Dan Brockerhoff
Date: 11/27/17
Time: 9:20

Steam Loop	Temp (F)	Pressure (PSI)
SL-1:	NM	NM
SL-2:	NM	NM

Well ID	DTW	DTP	Removed (Gal)	Temp (C)	Temp (F)	Comments
LC-1	5.83	-	NA	14.4	58.0	
LC-2	8.23	-	NA	14.4	57.9	
L-29	9.20	-	NA	NM	NM	
RW-1A	5.41	-	NA	NM	NM	
RFI-7	9.92	9.91	0.02	NM	NM	11/02/17: DTW = 10.03, DTP = ND; 11/27/17: RP = 10% Large Sock (0.02 Gal)
RFI-9R	1.05	-	NA	10.5	51.0	
MW-102	5.71	-	NA	NM	NM	11/02/17: DTW = 5.79, DTP = ND
MW-117	6.48	-	NA	NM	NM	
MW-118	9.91	-	NA	NM	NM	
ICM-1	6.07	-	NA	NM	NM	11/02/17: DTW = 5.78, DTP = ND
ICM-3	7.91	-	NA	NM	NM	
ICM-7	7.45	-	NA	14.0	57.2	
ICM-10	3.93	-	NA	16.6	61.9	
TMP-1	6.77	-	NA	15.3	59.5	11/02/17: DTW = 6.31, DTP = ND, 66.5 F
TMP-2	6.78	-	NA	14.3	57.8	
TMP-3	6.42	-	NA	14.5	58.1	
RW-1	5.50	-	NA	12.2	54	
RW-2	5.74	-	NA	12.1	53.8	
RW-3	5.81	-	NA	11.9	53.4	
RW-4	4.65	-	NA	NM	NM	
RW-5	10.51	-	NA	NM	NM	
SVE-BH-1	5.07	Sheen	0.02	NM	NM	11/02/17: DTW = 4.76, DTP = ND; 11/27/17: RP = 5% Large Sock (0.01 Gal); 11/27/17: RP = 5% Large Sock (0.01 Gal)
SVE-BH-2	3.48	Sheen	0.04	NM	NM	11/02/17: DTW = 3.29, DTP = Heavy Sheen, RP = 20% Small Sock (0.03 Gal); 11/27/17: RP = 5% Large Sock (0.01 Gal)
MW-LT-2	NA	NA	NA	NM	NM	11/02/17: DTW = 5.55, DTP = ND; 11/27/17: Well Destroyed During Area 6 Remediation Activities
MW-LT-3	NA	NA	NA	NM	NM	11/02/17: DTW = 4.71, DTP = ND; 11/27/17: Well Destroyed During Area 6 Remediation Activities
Tide	10.15	-	NA	NA	NM	11/02/17: DTW = 9.94 @ 10:35am; 7/25/17: DTW = 6.55 @ 12:37pm; 11/27/17: 11:25am

Notes:

DTW = Depth to Water (Feet)
DTP = Depth to Product (Feet)
NA = Measurement not applicable for that well
ND = Not Detected
NM = Not Measured

Gal = Gallons
C = Celsius
F = Fahrenheit
PSI = Pounds per Square Inch

Table 3-1c
ICM O&M Field Data - December 2017
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Field Personnel: Dan Brockerhoff, Priscilla Merta
Date: 12/29/17
Time: 8:30

Steam Loop	Temp (F)	Pressure (PSI)
SL-1:	NM	NM
SL-2:	NM	NM

Well ID	DTW	DTP	Removed (Gal)	Temp (C)	Temp (F)	Comments
LC-1	6.18	-	NA	10.8	51.4	
LC-2	8.56	-	NA	10.0	50.1	
L-29	9.56	-	NA	NM	NM	
RW-1A	5.54	-	NA	NM	NM	
RFI-7	10.16	-	NA	NM	NM	12/15/17: DTW = 10.23, DTP = ND
RFI-9R	0.99	-	NA	4.6	40.3	
MW-102	4.62	-	NA	NM	NM	12/15/17: DTW = 5.93, DTP = ND
MW-117	6.84	-	NA	NM	NM	
MW-118	10.38	-	NA	NM	NM	
ICM-1	5.88	-	NA	NM	NM	12/15/17: DTW = 6.22, DTP = ND
ICM-3	8.19	-	NA	NM	NM	
ICM-7	7.84	-	NA	10.2	50.3	
ICM-10	4.52	-	NA	12.2	54.0	
TMP-1	7.15	-	NA	11.2	52.1	12/15/17: DTW = 6.94, DTP = ND, Temp = 55.6 F
TMP-2	7.10	-	NA	10.9	51.6	
TMP-3	6.79	-	NA	10.2	50.4	
RW-1	5.88	-	NA	6.9	44.4	
RW-2	6.16	-	NA	6.1	43.0	
RW-3	6.25	-	NA	6.8	44.3	
RW-4	4.64	-	NA	NM	NM	
RW-5	11.07	-	NA	NM	NM	
SVE-BH-1	5.31	-	0.01	NM	NM	12/15/17: DTW = 5.28, DTP = Heavy Sheen, RP = 5% Large Sock (0.01 Gal)
SVE-BH-2	3.80	Sheen	0.04	NM	NM	12/15/17: DTW = 3.81, DTP = Heavy Sheen, RP = 10% Large Sock (0.02 Gal); 12/29/17: RP = 10% Large Sock (0.02 Gal)
MW-LT-2	NA	NA	NA	NA	NA	Well Destroyed During Area 6 Remediation Activities
MW-LT-3	NA	NA	NA	NA	NA	Well Destroyed During Area 6 Remediation Activities
Tide	12.51	-	NA	NA	NM	12/15/17: DTW = 12.50 @ 11:20am; 7/25/17: DTW = 6.55 @ 12:37pm; 10/23/17: 12:55pm

Notes:

DTW = Depth to Water (Feet)
DTP = Depth to Product (Feet)
NA = Measurement not applicable for that well
ND = Not Detected
NM = Not Measured

Gal = Gallons
C = Celsius
F = Fahrenheit
PSI = Pounds per Square Inch

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
12/20/02	11.65	12.45	0.80	0	GP-A [1]
1/2/03	11.85	12.45	0.60	0	GP-A [1]
1/23/03	13.22	13.59	0.37	1	MW-100 well development
1/23/03	10.02	10.36	0.34	1	MW-100 well development
1/27/03	9.26	9.40	0.14	0	GW monitoring event
2/26/03	9.36	9.91	0.55	3	LNAPL removal actions started at MW-100
3/18/03	8.90	9.39	0.49	6	
3/21/03	8.72	9.40	0.68	4.25	
3/24/03	8.72	9.46	0.74	4.25	
3/28/03	8.86	9.54	0.68	4.25	
4/1/03	8.80	9.40	0.60	4	
4/3/03	8.78	9.46	0.68	4.75	
4/11/03	8.69	9.30	0.61	4.25	
4/15/03	8.49	9.39	0.90	7	
4/18/03	8.62	9.13	0.51	4.25	
4/22/03	8.59	9.04	0.45	5	
4/25/03	8.63	8.99	0.36	3.75	
4/30/03	8.71	9.30	0.59	5	
5/22/03	-	-	-	0	Magnum Spill Buster System Installed
5/28/03	-	-	-	35	
6/2/03	-	-	-	25	
6/10/03	-	-	-	30	
6/17/03	8.99	9.00	0.59	30	
7/14/03	-	-	-	60	
7/21/03	10.56	10.58	0.02	-	
7/24/03	-	-	-	40	
Aug 2003	-	-	-	90	Monthly Estimate[2]
9/2/03	-	-	-	50	
9/7/03	9.92	9.96	0.04	-	
9/11/03	-	-	-	25	
9/30/03	-	-	-	25	
10/8/03	-	-	-	60	
10/25/03	-	-	-	20	
10/27/03	9.90	9.92	0.02	-	
11/8/03	9.76	9.81	0.05	-	
11/24/03	9.79	9.80	0.01	50	
12/9/03	9.95	9.96	0.01	-	
mid-Dec 2003	-	-	-	50	Exact date of drum pump-out not recorded
12/30/03	9.07	9.10	0.03	-	
12/31/03	-	-	-	25	
Jan 2004	-	-	-	-	Not pumped out / recorded [3]
2/6/04	-	-	-	15	
2/26/04	-	-	-	45	
Mar 2004	-	-	-	-	Not pumped out / recorded [3]
4/20/04	-	-	-	45	

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
4/26/04	-	-	-	20	
5/3/04	-	-	-	15	
5/10/04	-	-	-	4	
5/18/04	-	-	-	4	
5/24/04	-	-	-	4	
6/1/04	-	-	-	4	
6/14/04	-	-	-	7	
7/20/04	10.10	10.11	0.01	-	
July 2004	-	-	-	15	Monthly Estimate(2)
8/17/04	9.00	9.01	0.01	-	
Aug 2004	-	-	-	15	Monthly Estimate(2)
9/7/04	10.16	10.20	0.04	-	
Sept 2004	-	-	-	15	Monthly Estimate(2)
10/4/04	10.10	10.20	0.10	-	
10/15/04	-	-	-	30	
10/20/04	-	-	-	22.5	
10/29/04	-	-	-	15	
11/8/04	10.13	10.20	0.07	-	
Nov 2004				60	Monthly Estimate(2)
12/10/04	-	-	-	30	
12/21/04	9.91	10.18	0.27	22.5	
1/11/05	10.00	10.20	0.27	15	
2/9/05	-	-	-	30	
3/7/05	-	-	-	30	
3/14/05	-	-	-	15	
3/16/05	9.96	10.00	0.04	-	
4/1/05	-	-	-	30	
4/13/05	9.36	9.40	0.04	-	
4/18/05	9.30	9.75	0.45	30	
5/17/05	9.77	10.31	0.54	30	
6/15/05	9.91	10.10	0.19	30	
7/11/05	10.00	10.04	0.04	10	Approximately 30 gallons recovered between July to September 2005, estimated at 10 gallons per month over this period.
8/22/05	10.12	10.94	0.82	10	
9/12/05	10.53	10.56	0.03	10	
10/24/05	10.07	10.14	0.07	10	Approximately 30 gallons recovered between October and December 2005, estimated at 10 gallons per month over this period.
11/7/05	9.96	10.53	0.57	10	
12/21/05	9.94	10.21	0.27	10	
1/16/06	9.89	10.36	0.47	-	
2/15/06	8.45	10.43	1.98	-	
3/15/06	9.98	10.09	0.11	30	
4/3/06	10.32	10.39	0.07	7.5	
4/10/06	10.48	10.56	0.08	-	
5/17/06	10.34	10.39	0.05	-	
5/30/06	10.45	10.50	0.05	-	
6/14/06	9.86	10.52	0.66	6.1	

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
6/28/06	9.96	10.19	0.23	3.25	
7/10/06	9.88	10.41	0.53	14	
8/8/06	10.00	10.64	0.64	30	
8/21/06	10.33	10.38	0.05	5	
9/7/06	9.79	10.50	0.71	-	
9/20/06	9.67	10.30	0.63	25	
10/9/06	10.00	10.22	0.22	30	
11/2/06	9.62	10.07	0.45	30	
11/20/06	9.71	10.17	0.46	30	
11/30/06	-	-	-	20	
12/28/06	10.18	10.44	0.26	30	
1/8/07	9.91	9.96	0.05	-	
1/23/07	10.07	10.23	0.16	30	
2/7/07	ND	10.35	ND	-	
3/1/07	10.62	10.65	0.03	-	
3/14/07	ND	10.47	ND	-	
4/2/07	10.23	10.26	0.03	3.4	
4/19/07	9.34	9.62	0.28	3.9	
5/3/07	9.47	9.60	0.13	22.8	
5/15/07	9.65	9.72	0.07	30	
5/29/07	9.90	10.00	0.10	21.3	
6/13/07	9.83	9.97	0.14	30	
6/28/07	9.93	10.06	0.13	9.8	
7/9/07	10.00	10.07	0.07	20.2	
7/25/07	9.47	9.68	0.21	10.7	
8/15/07	9.88	10.22	0.34	19.3	
8/29/07	9.58	10.00	0.42	30	
9/12/07	9.92	9.95	0.03	6	
9/18/07	-	-	-	5.9	
10/1/07	10.25	10.32	0.07	-	
10/18/07	ND	10.25	ND	-	
11/13/07	ND	10.37	ND	-	
11/20/07	10.50	10.53	0.03	-	
12/10/07	ND	10.55	ND	1	
12/28/07	ND	10.53	ND	-	
1/7/08	ND	10.34	ND	-	
1/24/08	10.28	10.31	0.03	-	Spill Buster shut down on 1/24/08 due to frozen lines. Restarted on 3/12/08
2/12/08	ND	10.71	ND	-	
2/28/08	9.97	10.06	0.09	-	
3/12/08	9.75	10.22	0.47	-	
3/26/08	9.89	9.97	0.08	1	
4/7/08	10.15	10.20	0.05	14	
5/13/08	10.20	10.24	0.04	30	
6/10/08	10.03	10.09	0.06	22.5	
7/7/08	10.21	10.26	0.05	15	

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
8/8/08	10.19	10.23	0.04	-	
8/19/08	10.31	10.34	0.03	1	
9/3/08	10.48	10.49	0.01	-	
9/18/08	10.31	10.32	0.01	0.4	
10/6/08	10.25	10.27	0.02	-	
10/23/08	10.57	10.58	0.01	1.8	
11/4/08	ND	10.42	ND	-	
11/25/08	ND	10.29	ND	0.1	
12/9/08	10.55	10.56	0.01	-	
12/22/08	10.10	10.15	0.05	0.1	
1/5/09	10.18	10.19	0.01	5.8	
1/22/09	ND	10.28	ND	1.4	
2/4/09	ND	10.47	ND	0.3	
2/19/09	ND	10.24	ND	0.1	
3/11/09	ND	10.48	ND	-	
3/26/09	10.61	10.62	ND	-	
4/6/09	ND	10.37	ND	-	
4/28/09	ND	10.32	ND	-	
5/12/09	10.05	10.15	0.10	5.1	
5/27/09	10.23	10.25	0.02	1.8	
6/9/09	10.28	10.29	0.01	-	
6/25/09	9.81	10.05	0.24	28.3	
7/6/09	9.87	9.92	0.05	16.5	
7/23/09	10.04	10.09	0.05	11.3	
8/13/09	9.78	10.25	0.47	30	Spill buster shut down for unknown period between 8/13 and 8/27 (electrical).
8/27/09	8.35	10.45	2.10	1	Manual product removal on 8/27 with absorbent sock. Restarted on 8/27.
9/9/09	10.02	10.12	0.10	19.1	
10/5/09	10.03	10.14	0.11	-	
12/3/09	10.04	10.11	0.07	-	
1/4/10	10.05	10.08	0.03	0.2	Small absorbent sock (50% saturated) used to remove product
2/18/10	10.24	10.53	0.29	5.3	
2/24/10	ND	10.03	ND	1.4	
3/4/10	9.70	9.81	0.11	12.8	
3/24/10	9.30	9.43	0.13	8.6	
4/5/10	9.01	9.09	0.08	3	
4/22/10	9.33	9.55	0.22	8.1	
5/6/10	9.28	9.34	0.06	18.9	
5/11/10	9.59	9.68	0.09	4.1	
5/20/10	9.91	10.05	0.14	-	
6/3/10	9.65	9.76	0.11	30	
6/24/10	9.91	10.05	0.14	5.4	
7/12/10	10.07	10.14	0.07	10.6	

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
7/29/10	10.19	10.21	0.02	0.9	
8/12/10	10.40	10.42	0.02	-	
8/26/10	10.47	10.49	0.02	-	
9/2/10	10.51	10.53	0.02	-	
9/23/10	10.74	10.77	0.03	-	
10/4/10	ND	10.41	0.00	-	
10/21/10	ND	10.39	0.00	-	
11/4/10	ND	10.44	0.00	-	
11/18/10	ND	10.48	0.00	0.5	
12/2/10	10.78	10.81	0.03	-	
12/20/10	10.70	10.73	0.03	-	
1/10/11	10.91	10.94	0.03	0.1	
1/25/11	ND	10.76	ND	0.5	
2/8/11	ND	10.16	ND	-	
2/24/11	10.44	10.53	0.09	0.5	
3/8/11	ND	10.31	ND	0.5	
3/24/11	9.88	9.96	0.08	5.4	
4/4/11	10.05	10.06	0.01	-	
4/21/11	9.93	10.01	0.08	21.6	
5/4/11	9.67	10.02	0.35	12.5	Spill buster shut down for unknown period after 4/21 (electrical), restarted
5/12/11	9.70	10.26	0.56	-	on 5/12. Additonal product removed via bailer and absorbant socks.
6/2/11	9.65	9.83	0.18	28.6	
6/21/11	9.85	9.98	0.13	17.6	
7/11/11	10.08	10.12	0.04	5.8	
7/28/11	10.34	10.42	0.08	0.4	
8/11/11	ND	10.38	ND	-	
8/24/11	9.64	9.89	0.25	5.1	
8/26/11	9.66	9.79	0.13	2.5	Spill buster shut down, disconnected, and secured between 8/26-8/30
8/30/11	9.14	9.39	0.25	-	for Tropical Storm Irene. System restarted 8/30.
9/8/11	8.91	8.93	0.02	0.8	
9/26/11	9.11	9.14	0.03	-	
10/12/11	9.32	9.38	0.06	1.4	
10/24/11	9.40	9.48	0.08	3.4	
11/8/11	9.41	9.49	0.08	4.5	
11/22/11	9.67	9.73	0.06	4.9	
12/9/11	9.62	9.65	0.03	15.1	
12/21/11	9.58	9.90	0.32	2.6	
1/16/12	9.97	9.99	0.02	10.6	
1/25/12	10.02	10.13	0.11	3.4	
2/9/12	9.98	10.04	0.06	15.9	
2/22/12	10.06	10.07	0.01	2.5	
3/15/12	sheen	10.38	sheen	0.1	
3/28/12	ND	10.31	ND	-	
4/9/12	sheen	10.47	sheen	0.1	
4/26/12	ND	10.51	ND	-	

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
5/10/12	ND	10.41	ND	-	
5/22/12	ND	10.18	ND	-	
6/8/12	10.34	10.36	0.02	-	
6/20/12	ND	10.21	ND	-	
7/17/12	10.36	10.44	0.08	-	Spill Buster removed on 7/18/12.
7/31/12	9.50	9.61	0.11	0.1	Large absorbent sock (25% saturated) used to remove product
8/7/12	ND	9.53	ND	-	
8/22/12	9.57	9.62	0.05	-	Negligible product removed with large absorbent sock (<10% saturated).
9/5/12	9.50	9.52	0.02	-	Negligible product removed with large absorbent sock
9/20/12	ND	6.43	ND	-	
10/1/12	9.58	10.02	0.44	0.1	Bailer used to removed product
10/15/12	9.52	9.84	0.32	0.25	Large absorbent sock used to remove product (0.25 gal)
11/26/12	9.73	10.15	0.42	0.25	Bailer used to removed product
12/12/12	9.91	10.34	0.43	0.4	Two large absorbent sock used to remove product (100% saturated)
12/20/12	9.84	10.01	0.17	0.3	Bailer used to removed product
1/4/13	9.58	9.63	0.05	-	Negligible product removed with large absorbent sock
1/29/13	sheen	9.93	sheen	-	Negligible product removed with large absorbent sock (trace saturated).
2/11/13	ND	9.54	ND	-	
2/25/13	9.60	9.62	0.02	-	Negligible product removed with large absorbent sock (trace saturated).
3/11/13	9.39	9.40	0.01	-	Negligible product removed with large absorbent sock (trace saturated).
3/28/13	9.35	9.59	0.24	0.2	Large absorbent sock (75% saturated) used to remove product
4/10/13	9.44	9.62	0.18	0.1	Large absorbent sock (50% saturated) used to remove product
4/24/13	10.47	10.55	0.08	0.1	Large absorbent sock (50% saturated) used to remove product
5/13/13	9.49	9.58	0.09	0.1	Small absorbent sock (100% saturated) used to remove product
5/29/13	9.46	9.62	0.16	0.1	Large absorbent sock (50% saturated) used to remove product
6/12/13	8.68	9.52	0.84	0.1	Large absorbent sock (50% saturated) used to remove product
6/26/13	8.81	9.52	0.71	0.1	Large absorbent sock (50% saturated) used to remove product
7/9/13	8.86	9.59	0.73	0.1	Large absorbent sock (50% saturated) used to remove product
7/22/13	8.77	9.57	0.80	0.2	Large absorbent sock (90% saturated) used to remove product
8/14/13	8.93	9.71	0.78	0.2	Large absorbent sock (90% saturated) used to remove product
8/28/13	8.94	9.76	0.82	0.2	Large absorbent sock (90% saturated) used to remove product
9/11/13	9.03	9.76	0.73	0.1	Large absorbent sock (60% saturated) used to remove product
9/25/13	9.18	9.98	0.80	0.2	Large absorbent sock (100% saturated) used to remove product
10/7/13	9.29	9.47	0.18	0.1	Large absorbent sock (30% saturated) used to remove product
10/28/13	9.61	10.40	0.79	0.1	Large absorbent sock (50% saturated) used to remove product
11/5/13	9.74	9.75	0.01	-	
11/25/13	10.00	11.91	0.91	0.1	Large absorbent sock (40% saturated) used to remove product
12/4/13	10.05	10.19	0.14	0.1	Small absorbent sock (100% saturated) used to remove product
12/18/13	9.81	10.50	0.69	0.2	Large absorbent sock (100% saturated) used to remove product
1/8/14	9.99	10.44	0.45	0.1	Large absorbent sock (30% saturated) used to remove product
1/27/14	9.77	10.11	0.34	0.2	Large absorbent sock (80% saturated) used to remove product

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
2/12/14	9.92	10.20	0.28	0.2	Large absorbent sock (85% saturated) used to remove product
2/27/14	9.29	9.49	0.20	0.1	Large absorbent sock (50% saturated) used to remove product
3/12/14	9.40	9.52	0.12	0.1	Large absorbent sock (40% saturated) used to remove product
3/24/14	9.51	9.75	0.24	0.1	Large absorbent sock (40% saturated) used to remove product
4/14/14	9.20	9.80	0.60	0.2	Large absorbent sock (90% saturated) used to remove product
4/30/14	9.37	9.42	0.05	-	
5/14/14	9.00	9.65	0.65	0.2	Large absorbent sock (70% saturated) used to remove product
5/27/14	8.83	9.55	0.72	0.2	Large absorbent sock (100% saturated) used to remove product
6/11/14	8.91	8.92	0.01	0.2	Large absorbent sock (90% saturated) used to remove product
6/25/14	ND	8.78	ND	-	
7/9/14	8.92	9.05	0.13	0.2	Large absorbent sock (90% saturated) used to remove product
7/22/14	8.78	9.55	0.77	0.2	Large absorbent sock (95% saturated) used to remove product
8/6/14	8.94	9.76	0.82	0.2	Large absorbent sock (100% saturated) used to remove product
8/20/14	9.15	10.03	0.88	0.2	Large absorbent sock (95% saturated) used to remove product
9/3/14	9.38	10.24	0.86	0.2	Large absorbent sock (100% saturated) used to remove product
9/17/14	9.46	10.22	0.76	0.2	Large absorbent sock (100% saturated) used to remove product
10/3/2014	9.54	10.31	0.77	0.2	Large absorbent sock (90% saturated) used to remove product
10/16/2014	9.42	10.21	0.79	0.2	Large absorbent sock (90% saturated) used to remove product
11/6/2014	9.6	9.65	0.05	0.1	Large absorbent sock (30% saturated) used to remove product
11/20/2014	ND	9.56	ND	0.2	Large absorbent sock (90% saturated) used to remove product
12/4/2014	9.71	10.34	0.63	0.2	Large absorbent sock (75% saturated) used to remove product
12/18/2014	9.41	9.95	0.54	0.2	Large absorbent sock (95% saturated) used to remove product
1/15/2015	9.36	9.74	0.38	0.2	Large absorbent sock (90% saturated) used to remove product
1/29/2015	9.37	9.45	0.08	0.2	Large absorbent sock (100% saturated) used to remove product
2/11/2015	9.28	9.63	0.35	0.1	Small absorbent sock (90% saturated) used to remove product
2/26/2015	9.41	9.82	0.41	0.2	Large absorbent sock (100% saturated) used to remove product
3/16/2015	8.84	9.55	0.71	0.2	Large absorbent sock (100% saturated) used to remove product
3/27/2015	8.87	9.35	0.48	0.2	Large absorbent sock (90% saturated) used to remove product
4/10/2015	9.00	9.47	0.47	0.2	Large absorbent sock (80% saturated) used to remove product
4/20/2015	9.55	9.67	0.12	0.2	Large absorbent sock (90% saturated) used to remove product
5/8/2015	9.22	9.89	0.67	0.2	Large absorbent sock (80% saturated) used to remove product
5/21/2015	9.40	9.94	0.54	0.2	Large absorbent sock (90% saturated) used to remove product
6/12/2015	9.35	9.96	0.61	0.2	Large absorbent sock (85% saturated) used to remove product
6/26/2015	9.19	9.83	0.64	0.2	Large absorbent sock (75% saturated) used to remove product
7/10/2015	9.15	9.80	0.65	0.2	Large absorbent sock (90% saturated) used to remove product
7/20/2015	9.14	9.72	0.58	0.2	Large absorbent sock (100% saturated) used to remove product
8/7/2015	9.41	10.12	0.71	0.2	Large absorbent sock (90% saturated) used to remove product
8/21/2015	9.50	10.27	0.77	0.2	Large absorbent sock (95% saturated) used to remove product
9/4/2015	9.70	10.65	0.95	0.2	Large absorbent sock (100% saturated) used to remove product
9/14/2015	9.75	10.69	0.94	0.2	Large absorbent sock (90% saturated) used to remove product
10/9/2015	9.58	10.35	0.77	0.2	Large absorbent sock (90% saturated) used to remove product
10/19/2015	9.82	10.36	0.54	0.2	Large absorbent sock (90% saturated) used to remove product
11/6/2015	9.91	10.37	0.46	0.0	No Product Recovery on this sampling event.
11/25/2015	12.09	12.14	0.05	3.40	Spill Buster Product Recovery (Spill Buster installed 11/18/16)
12/11/2015	11.91	12.12	0.21	8.70	Spill Buster Product Recovery
12/23/2015	11.98	12.1	0.12	3.13	Spill Buster Product Recovery

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
1/8/2016	11.78	11.88	0.10	3.13	Spill Buster Product Recovery
1/18/2016	11.82	11.88	0.06	0.27	Spill Buster Product Recovery
2/5/2016	11.83	11.85	0.02	1.77	Spill Buster Product Recovery
2/17/2016	11.61	11.63	0.02	2.04	Spill Buster Product Recovery
3/11/2016	12.55	12.58	0.03	2.04	Spill Buster Product Recovery
3/29/2016	11.44	11.8	0.36	0.00	Spill Buster stopped working sometime between 2/17/16 and 3/11/16 due to malfunction. Spill Buster back on-line 3/31/16.
4/12/2016	11.6	11.65	0.05	4.76	Spill Buster Product Recovery
4/19/2016	11.61	11.69	0.08	3.53	Spill Buster Product Recovery
5/9/2016	11.58	12.09	0.51	1.36	Spill Buster Product Recovery
5/20/2016	11.82	11.86	0.04	1.90	Spill Buster Product Recovery
6/7/2016	11.55	11.81	0.26	0.50	Spill Buster Product Recovery
6/24/2016	11.75	12.24	0.49	0.50	Spill Buster Product Recovery
7/5/2016	11.68	12.24	0.56	1.0	Spill Buster Product Recovery
7/20/2016	11.75	12.58	0.83	0.4	Spill Buster Product Recovery - equipment malfunctioning
8/5/2016	11.39	12.25	0.86	0.1	Spill Buster Product Recovery - equipment malfunctioning
8/18/2016	11.68	12.45	0.77	2.6	Spill Buster Product Recovery - equipment malfunctioning
9/2/2016	11.83	12.74	0.91	1.2	Spill Buster removed for repairs
9/23/2016	11.61	12.59	0.98	0.4	Spill Buster removed for repairs
10/7/2016	11.82	12.4	0.58	0.3	2 Large absorbent socks (100% and 60% saturated, respectively) used to remove product
10/17/2016	12.11	12.15	0.04	1.0	Spill Buster Product Recovery
11/11/2016	ND	12.25	0.00	0.1	Spill Buster Product Recovery
11/22/2016	12.31	12.34	0.03	0.0	Spill Buster Product Recovery
12/9/2016	12.1	12.12	0.02	0.7	Spill Buster Product Recovery
12/22/2016	11.87	11.89	0.02	0.5	Spill Buster Product Recovery
1/6/17	11.99	12.05	0.06	0.1	Spill Buster Product Recovery
1/18/17	11.72	12.25	0.53	NM	Spill Buster Product Recovery
2/3/17	11.74	11.82	0.08	4.1	Spill Buster Product Recovery
2/17/17	ND	11.70	0.00	1.6	Spill Buster Product Recovery
3/10/17	11.76	11.81	0.05	1.5	Spill Buster Product Recovery
3/24/17	11.66	11.8	0.14	1.6	Spill Buster Product Recovery
4/7/17	ND	11.09	0.00	0.3	Spill Buster Product Recovery
4/24/17	ND	11.45	0.00	0.5	Spill Buster Product Recovery
5/12/17	11.19	11.2	0.01	0.5	Spill Buster Product Recovery
5/26/17	10.92	11.02	0.10	5.8	Spill Buster Product Recovery
6/2/17	11.05	11.07	0.02	6.7	Spill Buster Product Recovery
6/23/17	10.85	10.95	0.10	14	Spill Buster Product Recovery
7/7/17	10.76	11.15	0.39	16.6	Spill Buster Product Recovery
7/25/17	11.00	11.12	0.12	7.9	Spill Buster Product Recovery
8/4/17	10.95	11.01	0.06	2.4	Spill Buster Product Recovery
8/18/17	ND	10.78	0.00	10.7	Spill Buster Product Recovery
9/11/17	10.79	10.94	0.15	22.1	Spill Buster Product Recovery
9/22/17	11.00	11.06	0.06	5.4	Spill Buster Product Recovery
10/6/17	11.19	11.20	0.01	0.3	Spill Buster Product Recovery

Table 3-2
Product Thickness and Removal Volumes from MW-100
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date	DTP (ft bmp)	DTW (ft bmp)	Thickness (ft)	Removed (gallons)	Notes
10/23/17	11.42	11.46	0.04	1.1	Spill Buster Product Recovery
11/2/17	11.35	11.38	0.03	0.1	Spill Buster Product Recovery
11/27/17	11.51	11.53	0.02	0.1	Spill Buster Product Recovery
12/15/17	ND	11.8	0.00	0.0	Spill Buster Product Recovery - equipment malfunctioning
12/29/17	11.65	11.9	0.25	0.0	Spill Buster Product Recovery - equipment malfunctioning
			Total	2,483.2	

Notes:
ft bmp = Feet below measuring point
DTP = Depth to product
DTW = Depth to water
ND = None detected
(1) Measurements on 12/20/02 and 1/2/03 were collected from GP-A, prior to installation of MW-100 at the same location.
(2) Port Mobil Personnel did not record product volume when the recovery drums were pumped out during this month. Therefore, product removed from MW-100 during this month is estimated based on discussions with Port Mobil Personnel, observations of the well and system performance, and previous/subsequent months' recovery volumes.
(3) Port Mobil Personnel did not pump out drums or record product volume during this month.

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
10/23/97	0.0	N/A	N/A	N/A	0.0	0.6	N/A	0.0	0.0	N/A	0.6	0.6
10/27/97	0.0	N/A	N/A	N/A	0.0	0.7	N/A	0.0	0.0	N/A	0.7	0.7
11/4/97	0.0	N/A	N/A	N/A	0.0	2.2	N/A	0.0	0.0	N/A	2.2	2.2
11/20/97	0.0	N/A	N/A	N/A	0.0	4.7	N/A	0.0	0.0	N/A	4.7	4.7
12/18/97	0.2	N/A	N/A	N/A	0.2	5.5	N/A	0.0	0.0	N/A	5.5	5.7
1/28/98	3.7	0.0	N/A	N/A	3.7	9.1	N/A	0.0	0.0	N/A	9.1	12.8
2/10/98	3.7	0.0	N/A	N/A	3.7	15.6	N/A	0.0	0.0	N/A	15.6	19.3
2/20/98	3.7	0.0	N/A	N/A	3.7	16.4	N/A	0.0	0.0	N/A	16.4	20.1
3/5/98	3.7	0.0	N/A	N/A	3.7	17.1	N/A	0.0	0.0	N/A	17.1	20.8
3/10/98	4.4	0.0	N/A	N/A	4.4	18.5	N/A	0.0	0.0	N/A	18.5	22.9
4/6/98	5.5	0.0	N/A	N/A	5.5	20.9	N/A	0.0	0.0	N/A	20.9	26.5
5/11/98	8.2	0.0	N/A	N/A	8.2	22.8	N/A	0.0	0.0	N/A	22.8	31.0
6/5/98	8.9	0.0	N/A	N/A	8.9	27.0	N/A	0.0	0.0	N/A	27.0	35.9
7/7/98	10.4	0.0	N/A	N/A	10.4	32.1	N/A	0.0	0.0	N/A	32.1	42.4
8/6/98	10.7	0.0	N/A	N/A	10.7	33.7	N/A	0.0	0.0	N/A	33.7	44.4
9/10/98	11.6	0.0	N/A	N/A	11.6	35.8	N/A	0.0	0.0	N/A	35.8	47.4
10/9/98	11.6	0.0	N/A	N/A	11.6	36.2	N/A	0.0	0.0	N/A	36.2	47.8
11/13/98	11.6	0.0	N/A	N/A	11.6	36.7	N/A	0.0	0.0	N/A	36.7	48.3
12/8/98	11.7	0.0	N/A	N/A	11.7	36.8	N/A	0.0	0.0	N/A	36.8	48.6
1/13/99	11.7	0.0	N/A	N/A	11.7	37.1	N/A	0.0	0.0	N/A	37.1	48.8
2/9/99	11.7	0.0	N/A	N/A	11.7	37.6	N/A	0.0	0.0	N/A	37.6	48.6
3/19/99	11.7	0.0	N/A	N/A	11.7	38.0	N/A	0.0	0.0	N/A	38.0	49.7
4/30/99	11.7	0.0	N/A	N/A	11.7	38.0	N/A	0.0	0.0	N/A	38.0	49.7
5/6/99	11.7	0.0	N/A	N/A	11.7	38.0	N/A	0.0	0.0	N/A	38.0	49.7
6/9/99	12.2	0.0	N/A	N/A	12.2	40.0	N/A	0.0	0.0	N/A	40.0	52.2
7/15/99	12.2	0.0	N/A	N/A	12.2	40.7	N/A	0.0	0.0	N/A	40.7	52.9
8/26/99	12.2	0.0	N/A	N/A	12.2	41.2	N/A	0.0	0.0	N/A	41.2	53.4
9/16/99	12.2	0.0	N/A	N/A	12.2	41.7	N/A	0.0	0.0	N/A	41.7	53.9

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
10/6/99	12.6	0.0	N/A	N/A	12.6	43.0	N/A	0.0	0.0	N/A	43.0	55.6
11/8/99	12.6	0.0	N/A	N/A	12.6	45.3	N/A	0.0	0.0	N/A	45.3	57.9
12/15/99	12.6	0.0	N/A	N/A	12.6	45.8	N/A	0.0	0.0	N/A	45.8	58.3
1/10/00	12.6	0.0	N/A	N/A	12.6	46.1	N/A	0.0	0.0	N/A	46.1	58.7
2/17/00	12.6	0.0	N/A	N/A	12.6	46.6	N/A	0.0	0.0	N/A	46.6	59.2
3/24/00	12.6	0.0	N/A	N/A	12.6	47.5	N/A	0.0	0.0	N/A	47.5	60.1
4/14/00	12.6	0.0	N/A	N/A	12.6	48.2	N/A	0.0	0.0	N/A	48.2	60.8
5/3/00	12.6	0.0	N/A	N/A	12.6	49.7	N/A	0.0	0.0	N/A	49.7	62.3
6/7/00	12.6	0.0	N/A	N/A	12.6	49.7	N/A	0.0	0.0	N/A	49.7	62.3
7/28/00	12.6	0.0	N/A	N/A	12.6	49.7	N/A	0.0	0.0	N/A	49.7	62.3
8/24/00	12.6	0.0	N/A	N/A	12.6	52.3	N/A	0.0	0.0	N/A	52.3	64.9
9/26/00	12.6	0.0	N/A	N/A	12.6	52.3	N/A	0.0	0.0	N/A	52.3	64.9
10/18/00	12.6	0.0	N/A	N/A	12.6	52.3	N/A	0.0	0.0	N/A	52.3	64.9
11/7/00	14.7	0.0	N/A	N/A	14.7	52.3	N/A	0.0	0.0	N/A	52.3	67.0
12/6/00	15.2	0.0	N/A	N/A	15.2	52.3	N/A	0.0	0.0	N/A	52.3	67.5
1/4/01	15.2	0.0	N/A	N/A	15.2	52.3	N/A	0.0	0.0	N/A	52.3	67.5
2/7/01	16.3	0.0	N/A	N/A	16.3	52.3	N/A	0.0	0.0	N/A	52.3	68.6
3/30/01	16.3	0.0	N/A	N/A	16.3	52.3	0.0	0.0	0.0	N/A	52.3	68.6
4/18/01	16.3	0.0	N/A	N/A	16.3	54.3	0.0	0.0	0.0	N/A	54.3	70.6
5/9/01	16.3	0.0	N/A	N/A	16.3	54.3	0.0	0.0	0.0	N/A	54.3	70.6
6/21/01	16.3	0.0	N/A	N/A	16.3	54.8	0.0	0.0	0.0	N/A	54.8	71.1
7/18/01	16.3	0.0	N/A	N/A	16.3	54.8	0.0	0.0	0.0	N/A	54.8	71.1
8/15/01	16.3	0.0	N/A	N/A	16.3	55.0	0.0	0.0	0.0	N/A	55.0	71.3
9/11/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	N/A	55.7	72.0
10/8/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	0.1	55.9	72.2
10/18/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	0.7	56.4	72.7
11/1/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	1.8	57.5	73.8
11/15/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	1.8	57.5	73.8

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
11/29/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	1.8	57.5	73.8
12/13/01	16.3	0.0	N/A	N/A	16.3	55.7	0.0	0.0	0.0	1.8	57.5	73.8
1/3/02	16.3	0.0	N/A	N/A	16.3	56.2	0.0	0.0	0.0	1.8	58.0	74.3
2/7/02	16.3	0.0	N/A	N/A	16.3	56.3	0.0	0.0	0.0	1.8	58.1	74.4
3/7/02	16.3	0.0	N/A	N/A	16.3	57.0	0.5	0.0	0.0	1.8	59.3	75.6
4/15/02	16.3	0.0	N/A	N/A	16.3	57.0	0.6	0.0	0.0	1.8	59.4	75.7
5/8/02	16.3	0.0	N/A	N/A	16.3	58.3	1.1	0.0	0.0	1.8	61.2	77.5
6/13/02	16.3	0.0	N/A	N/A	16.3	59.8	1.4	0.0	0.0	1.8	62.9	79.2
7/24/02	16.3	0.0	N/A	N/A	16.3	60.1	1.5	0.0	0.0	1.8	63.3	79.6
8/7/02	16.3	0.0	1.0	N/A	17.3	60.7	1.6	0.0	0.0	1.8	64.0	81.3
9/10/02	16.3	0.0	1.0	N/A	17.3	60.9	1.7	0.0	0.0	1.8	64.3	81.6
10/2/02	16.3	0.0	1.0	N/A	17.3	62.4	3.2	0.0	0.0	1.8	67.4	84.7
11/6/02	16.3	0.0	1.0	N/A	17.3	63.3	3.3	0.0	0.0	1.8	68.4	85.7
12/11/02	16.3	0.0	1.0	N/A	17.3	63.9	3.6	0.0	0.0	1.8	69.3	86.6
1/27/03	16.3	0.0	1.0	2.0	19.3	64.4	4.1	0.0	0.0	1.8	70.3	89.6
2/24/03	16.3	0.0	1.0	5.0	22.3	64.4	4.1	0.0	0.0	1.8	70.3	92.6
3/3/03	16.3	0.0	1.0	23.8	41.0	64.7	4.3	0.0	0.0	1.8	70.8	111.8
4/22/03	16.3	0.0	1.0	61.8	79.0	64.7	4.3	0.0	0.0	1.8	70.8	149.8
5/27/03	16.3	0.0	1.0	96.8	114.0	65.4	4.3	0.0	0.0	1.8	71.5	185.6
6/25/03	16.3	0.0	1.0	181.8	199.0	65.7	5.3	0.0	0.0	1.8	72.8	271.8
7/21/03	16.3	0.0	1.0	281.8	299.0	66.4	5.3	0.0	0.0	1.8	73.5	372.6
8/12/03	16.3	0.0	1.0	371.8	389.0	67.0	5.4	0.0	0.0	1.8	74.2	463.2
9/7/03	16.3	0.0	1.0	471.8	489.0	67.6	5.9	0.0	0.0	1.8	75.3	564.3
10/27/03	16.3	0.0	1.0	551.8	569.0	68.2	5.9	0.0	0.0	1.8	75.9	644.9
11/24/03	16.3	0.0	1.0	601.8	619.0	68.2	5.9	0.0	0.0	1.8	75.9	694.9
12/9/03	16.3	0.0	1.0	676.8	694.0	68.4	7.9	0.0	0.0	1.8	78.1	772.1
1/22/04	16.3	0.0	1.0	676.8	694.0	68.8	8.0	0.0	0.0	1.8	78.6	772.6
2/5/04	16.3	0.0	1.0	736.8	754.0	69.5	8.0	0.0	0.0	1.8	79.3	833.4

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
3/4/04	16.3	0.0	1.0	736.8	754.0	69.9	8.0	0.0	0.0	1.8	79.7	833.7
4/20/04	16.3	0.0	1.0	801.8	819.0	70.2	8.1	0.0	0.0	1.8	80.1	899.2
5/18/04	16.3	0.0	1.0	828.8	846.0	70.6	8.2	0.0	0.0	1.8	80.6	926.6
6/15/04	16.3	0.0	1.0	839.8	857.0	70.9	9.0	0.0	0.0	1.8	81.7	938.7
7/20/04	16.3	0.0	1.0	854.8	872.0	71.2	9.0	0.0	0.0	1.8	81.9	954.0
8/17/04	16.3	0.0	1.0	869.8	887.0	73.7	9.0	0.0	0.0	1.8	84.4	971.5
9/7/04	16.3	0.0	1.0	884.8	902.0	74.2	9.5	0.0	0.0	1.8	85.4	987.5
10/4/04	16.3	0.0	1.0	952.3	969.5	75.3	9.5	0.0	0.0	1.8	86.5	1056.1
11/8/04	16.3	0.0	1.0	1012.3	1029.5	75.7	9.5	0.0	0.0	1.8	87.0	1116.5
12/12/04	16.3	0.0	1.0	1064.8	1082.0	76.4	9.7	0.0	0.0	1.8	87.9	1170.0
1/11/05	16.3	0.0	1.0	1079.8	1097.0	76.7	9.9	0.0	0.0	1.8	88.3	1185.4
2/18/05	16.3	0.0	1.0	1109.8	1127.0	78.4	11.6	0.0	0.0	1.8	91.8	1218.9
3/16/05	16.3	0.0	1.0	1154.8	1172.0	80.2	11.7	0.0	0.0	1.8	93.7	1265.7
4/13/05	16.3	0.0	1.0	1214.8	1232.0	80.7	11.8	0.0	0.0	1.8	94.3	1326.3
5/17/05	16.3	0.0	1.0	1244.8	1262.0	81.5	12.1	0.0	0.0	1.8	95.3	1357.4
6/15/05	16.3	0.0	1.0	1274.8	1292.0	81.5	12.1	0.0	0.0	1.8	95.3	1387.4
7/11/05	16.3	0.0	1.0	1284.8	1302.0	82.2	12.2	0.0	0.0	1.8	96.1	1398.2
8/22/05	16.3	0.0	1.0	1294.8	1312.0	82.8	12.3	0.0	0.0	1.8	96.8	1408.9
9/12/05	16.3	0.0	1.0	1304.8	1322.0	82.8	12.3	0.0	0.0	1.8	96.8	1418.9
10/24/05	16.3	0.0	1.0	1314.8	1332.0	82.8	12.3	0.0	0.0	1.8	96.8	1428.9
11/7/05	16.3	0.0	1.0	1324.8	1342.0	83.8	12.5	0.0	0.0	1.8	98.1	1440.1
12/21/05	16.3	0.0	1.0	1334.8	1352.0	84.8	12.8	0.0	0.0	1.8	99.3	1451.4
1/16/06	16.3	0.0	1.0	1334.8	1352.0	84.8	12.8	0.0	0.0	1.8	99.3	1451.4
2/15/06	16.3	0.0	1.0	1334.8	1352.0	84.9	12.8	0.0	0.0	1.8	99.4	1451.5
3/15/06	16.3	0.0	1.0	1364.8	1382.0	85.4	13.3	0.0	0.0	1.8	100.4	1482.5
4/3/06	16.3	0.0	1.0	1372.3	1389.5	85.6	13.4	0.0	0.0	1.8	100.8	1490.3
5/17/06	16.3	0.0	1.0	1372.3	1389.5	85.6	13.9	0.4	0.0	1.8	101.7	1491.2
6/14/06	16.3	0.0	1.0	1381.6	1398.9	85.6	14.4	0.4	0.0	1.8	102.2	1501.1

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
7/10/06	16.3	0.0	1.0	1395.6	1412.9	85.9	14.9	0.7	0.0	1.8	103.2	1516.1
8/8/06	16.3	0.0	1.0	1430.6	1447.9	85.9	15.4	0.7	0.0	1.8	103.7	1551.6
9/7/06	16.3	0.0	1.0	1455.6	1472.9	85.9	15.9	0.7	0.0	1.8	104.2	1577.1
10/9/06	16.3	0.0	1.0	1485.6	1502.9	86.1	16.0	0.9	0.0	1.8	104.8	1607.7
11/20/06	16.3	0.0	1.0	1565.6	1582.9	86.1	16.1	0.9	0.0	1.8	104.9	1687.8
12/13/06	16.3	0.0	1.0	1595.6	1612.9	86.2	16.2	0.9	0.0	1.8	105.1	1718.0
1/8/07	16.3	0.0	1.0	1625.6	1642.9	86.3	16.4	0.9	0.0	1.8	105.4	1748.3
2/7/07	16.3	0.0	1.0	1625.6	1642.9	86.3	16.6	0.9	0.0	1.8	105.6	1748.5
3/14/07	16.3	0.0	1.0	1625.6	1642.9	86.6	16.6	1.2	0.0	1.8	106.1	1749.0
4/2/07	16.3	0.0	1.0	1632.9	1650.2	86.7	16.8	1.4	0.0	1.8	106.6	1756.8
5/15/07	16.3	0.0	1.0	1707.0	1724.3	86.7	17.0	2.9	0.0	1.8	108.4	1832.7
6/13/07	16.3	0.0	1.0	1737.0	1754.3	86.9	17.0	4.4	0.0	1.8	110.1	1864.4
7/9/07	16.3	0.0	1.0	1777.7	1795.0	88.0	17.1	4.4	0.0	1.8	111.3	1906.2
8/15/07	16.3	0.0	1.0	1827.0	1844.3	88.5	17.1	5.9	0.0	1.8	113.3	1957.5
9/12/07	16.3	0.0	1.0	1838.9	1856.2	89.0	17.4	11.3	0.0	1.8	119.4	1975.6
10/18/07	16.3	0.0	1.0	1838.9	1856.2	89.5	17.5	11.4	0.0	1.8	120.1	1976.3
11/13/07	16.3	0.0	1.0	1838.9	1856.2	89.5	17.5	11.9	0.0	1.8	120.6	1976.8
12/10/07	16.3	0.0	1.0	1839.9	1857.2	89.5	17.7	11.9	0.0	1.8	120.9	1978.0
1/7/08	16.3	0.0	1.0	1839.9	1857.2	90.0	18.2	11.9	0.0	1.8	121.9	1979.0
2/12/08	16.3	0.0	1.0	1839.9	1857.2	90.0	18.2	12.4	0.0	1.8	122.4	1979.5
3/12/08	16.3	0.0	1.0	1840.9	1858.2	90.0	18.0	11.9	0.0	1.8	121.6	1979.8
4/7/08	16.3	0.0	1.0	1854.9	1872.2	90.5	18.0	11.9	0.0	1.8	122.1	1994.3
5/13/08	16.3	0.0	1.0	1884.9	1902.2	90.5	18.2	12.4	0.0	1.8	122.9	2025.0
6/10/08	16.3	0.0	1.0	1907.4	1924.7	90.5	18.2	12.9	0.0	1.8	123.4	2048.0
7/7/08	16.3	0.0	1.0	1922.4	1939.7	91.0	18.2	12.9	0.0	1.8	123.9	2063.5
8/8/08	16.3	0.0	1.0	1923.4	1940.7	91.0	18.5	12.9	0.0	1.8	124.1	2064.8
9/3/08	16.3	0.0	1.0	1923.8	1941.1	91.0	19.0	13.4	0.0	1.8	125.1	2066.2
10/6/08	16.3	0.0	1.0	1925.6	1942.9	91.0	19.0	13.4	0.0	1.8	125.1	2068.0

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
11/4/08	16.3	0.0	1.0	1925.7	1943.0	91.1	19.0	13.8	0.0	1.8	125.6	2068.5
12/9/08	16.3	0.0	1.0	1925.8	1943.1	91.1	19.0	14.0	0.0	1.8	125.8	2068.9
1/5/09	16.3	0.0	1.0	1933.0	1950.3	91.1	19.1	14.0	0.0	1.8	125.9	2076.2
2/4/09	16.3	0.0	1.0	1933.3	1950.6	91.2	19.3	14.1	0.0	1.8	126.3	2076.9
3/11/09	16.3	0.0	1.0	1933.3	1950.6	91.2	19.3	14.1	0.0	1.8	126.3	2076.9
4/6/09	16.3	0.0	1.0	1933.3	1950.6	91.2	19.3	14.1	0.0	1.8	126.3	2076.9
5/12/09	16.3	0.0	1.0	1940.2	1957.5	91.2	19.4	14.2	0.0	1.8	126.5	2084.0
6/9/09	16.3	0.0	1.0	1968.5	1985.8	91.6	19.5	14.3	0.0	1.8	127.1	2112.9
7/6/09	16.3	0.0	1.0	1996.3	2013.6	91.8	19.7	14.3	0.0	1.8	127.5	2141.1
8/13/09	16.3	0.0	1.0	2027.3	2044.6	92.3	19.7	14.3	0.0	1.8	128.0	2172.6
9/9/09	16.3	0.0	1.0	2046.4	2063.7	92.5	19.7	14.5	0.0	1.8	128.4	2192.1
10/5/09	16.3	0.0	1.0	2046.4	2063.7	92.5	19.8	14.6	0.0	1.8	128.6	2192.3
12/3/09	16.3	0.0	1.0	2046.4	2063.7	92.5	19.8	14.6	0.0	1.8	128.6	2192.3
1/4/10	16.3	0.0	1.0	2046.6	2063.9	92.5	20.0	14.6	0.0	1.8	128.9	2192.8
2/24/10	16.3	0.0	1.0	2053.3	2070.6	92.6	20.0	14.6	0.0	1.8	129.0	2199.6
3/24/10	16.3	0.0	1.0	2074.7	2092.0	92.6	20.0	14.6	0.0	1.8	129.0	2221.0
4/5/10	16.3	0.0	1.0	2085.8	2103.1	92.6	20.3	14.6	0.0	1.8	129.3	2232.4
5/6/10	16.3	0.0	1.0	2108.8	2126.1	92.7	20.4	14.6	0.0	1.8	129.5	2255.6
6/3/10	16.3	0.0	1.0	2144.2	2161.5	92.8	20.5	14.6	0.0	1.8	129.7	2291.2
7/12/10	16.3	0.0	1.0	2155.7	2173.0	92.8	20.5	14.7	0.0	1.8	129.8	2302.8
8/12/10	16.3	0.0	1.0	2155.7	2173.0	93.1	20.5	14.7	0.0	1.8	130.1	2303.1
9/2/10	16.3	0.0	1.0	2155.7	2173.0	93.1	20.5	14.7	0.0	1.8	130.1	2303.1
10/4/10	16.3	0.0	1.0	2155.7	2173.0	93.1	20.5	14.7	0.0	1.8	130.1	2303.1
11/4/10	16.3	0.0	1.0	2156.2	2173.5	93.2	20.5	14.7	0.0	1.8	130.2	2303.7
12/2/10	16.3	0.0	1.0	2156.2	2173.5	93.3	20.5	14.7	0.0	1.8	130.3	2303.8
1/10/11	16.3	0.0	1.0	2156.8	2174.1	93.3	20.6	14.7	0.0	1.8	130.4	2304.5
2/8/11	16.3	0.0	1.0	2157.3	2174.6	93.4	20.6	14.7	0.0	1.8	130.5	2305.1
3/8/11	16.3	0.0	1.0	2163.2	2180.5	93.6	20.6	14.7	0.0	1.8	130.7	2311.2

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
4/4/11	16.3	0.0	1.0	2184.8	2202.1	93.8	20.7	14.7	0.0	1.8	131.0	2333.1
5/4/11	16.3	0.0	1.0	2197.3	2214.6	93.9	20.8	14.7	0.0	1.8	131.2	2345.8
6/2/11	16.3	0.0	1.0	2243.5	2260.8	94.0	20.8	14.7	0.0	1.8	131.3	2392.1
7/11/11	16.3	0.0	1.0	2249.7	2267.0	94.1	21.0	14.7	0.0	1.8	131.6	2398.6
8/11/11	16.3	0.0	1.0	2257.3	2274.6	94.1	21.0	14.7	0.0	1.8	131.6	2406.2
9/8/11	16.3	0.0	1.0	2258.1	2275.4	94.1	21.0	14.7	0.0	1.8	131.6	2407.0
10/24/11	16.3	0.0	1.0	2262.9	2280.2	94.1	21.1	14.7	0.0	1.8	131.7	2411.9
11/22/11	16.3	0.0	1.0	2272.3	2289.6	94.1	21.3	14.7	0.0	1.8	131.9	2421.5
12/21/11	16.3	0.0	1.0	2290.0	2307.3	94.2	21.4	14.7	0.0	1.8	132.1	2439.4
1/16/12	16.3	0.0	1.0	2304.0	2321.3	94.2	21.4	14.7	0.0	1.8	132.1	2453.4
2/9/12	16.3	0.0	1.0	2322.4	2339.7	94.2	21.4	14.7	0.0	1.8	132.1	2471.8
3/15/12	16.3	0.0	1.0	2322.5	2339.8	94.2	21.4	14.7	0.0	1.8	132.1	2471.9
4/9/12	16.3	0.0	1.0	2322.6	2339.9	94.2	21.4	14.7	0.0	1.8	132.1	2472.0
5/10/12	16.3	0.0	1.0	2322.6	2339.9	94.2	21.4	14.7	0.0	1.8	132.1	2472.0
6/8/12	16.3	0.0	1.0	2322.6	2339.9	94.2	21.4	14.7	0.0	1.8	132.1	2472.0
7/31/12	16.3	0.0	1.0	2322.7	2340.0	94.2	21.4	14.7	0.0	1.8	132.1	2472.1
8/22/12	16.3	0.0	1.0	2322.7	2340.0	94.2	21.4	14.7	0.0	1.8	132.1	2472.1
9/5/12	16.3	0.0	1.0	2322.7	2340.0	94.2	21.4	14.7	0.0	1.8	132.1	2472.1
10/1/12	16.3	0.0	1.0	2323.1	2340.3	94.2	21.5	14.7	0.0	1.8	132.2	2472.5
11/26/12	16.3	0.0	1.0	2323.3	2340.6	94.2	21.6	14.7	0.0	1.8	132.3	2472.9
12/20/12	16.3	0.0	1.0	2324.0	2341.3	94.2	21.6	14.7	0.0	1.8	132.3	2473.6
1/29/13	16.3	0.0	1.0	2324.0	2341.3	94.2	21.6	14.7	0.1	1.8	132.4	2473.7
2/25/13	16.3	0.0	1.0	2324.0	2341.3	94.2	21.6	14.7	0.2	1.8	132.5	2473.8
3/28/13	16.3	0.0	1.0	2324.2	2341.5	94.2	21.6	14.7	0.2	1.8	132.5	2474.0
4/24/13	16.3	0.0	1.0	2324.4	2341.7	94.2	21.7	14.7	0.3	1.8	132.7	2474.4
5/13/13	16.3	0.0	1.0	2324.6	2341.9	94.2	21.7	14.7	0.3	1.8	132.7	2474.6
6/12/13	16.3	0.0	1.0	2324.8	2342.1	94.2	21.7	14.7	0.3	1.8	132.7	2474.8
7/9/13	16.3	0.0	1.0	2325.1	2342.4	94.2	21.8	14.7	0.3	1.8	132.8	2475.2

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
8/14/13	16.3	0.0	1.0	2325.5	2342.8	94.2	21.8	14.7	0.3	1.8	132.8	2475.6
9/25/13	16.3	0.0	1.0	2325.8	2343.1	94.2	21.8	14.7	0.3	1.8	132.8	2475.9
10/28/13	16.3	0.0	1.0	2326.0	2343.3	94.2	21.8	14.7	0.3	1.8	132.8	2476.1
11/25/13	16.3	0.0	1.0	2326.1	2343.4	94.2	21.9	14.7	0.3	1.8	132.9	2476.3
12/18/13	16.3	0.0	1.0	2326.4	2343.7	94.2	22.0	14.7	0.3	1.8	133.0	2476.7
1/27/14	16.3	0.0	1.0	2326.7	2344.0	94.2	22.3	14.7	0.3	1.8	133.3	2477.3
2/27/14	16.3	0.0	1.0	2327.0	2344.3	94.2	22.8	14.7	0.3	1.8	133.8	2478.1
3/24/14	16.3	0.0	1.0	2327.2	2344.5	94.2	22.9	14.7	0.3	1.8	133.9	2478.4
4/30/14	16.3	0.0	1.0	2327.4	2344.7	94.3	23.0	14.7	0.3	1.8	134.1	2478.8
5/27/14	16.3	0.0	1.0	2327.8	2345.1	94.4	23.0	14.7	0.3	1.8	134.2	2479.3
6/25/14	16.3	0.0	1.0	2328.0	2345.3	94.4	23.0	14.7	0.3	1.8	134.2	2479.5
7/9/14	16.3	0.0	1.0	2328.2	2345.5	94.4	23.0	14.7	0.3	1.8	134.2	2479.7
7/22/14	16.3	0.0	1.0	2328.4	2345.7	94.4	23.0	14.7	0.3	1.8	134.2	2479.9
8/6/14	16.3	0.0	1.0	2328.6	2345.9	94.4	23.0	14.7	0.3	1.8	134.2	2480.1
8/20/14	16.3	0.0	1.0	2328.8	2346.1	94.4	23.0	14.7	0.3	1.8	134.2	2480.3
9/3/14	16.3	0.0	1.0	2329.0	2346.3	94.4	23.0	14.7	0.3	1.8	134.2	2480.5
9/17/14	16.3	0.0	1.0	2329.2	2346.5	94.4	23.0	14.7	0.3	1.8	134.2	2480.7
10/3/2014	16.3	0.0	1.0	2329.4	2346.7	94.4	23.0	14.7	0.3	1.8	134.2	2480.9
10/16/2014	16.3	0.0	1.0	2329.6	2346.9	94.4	23.0	14.7	0.3	1.8	134.2	2481.1
11/6/2014	16.3	0.0	1.0	2329.7	2347.0	94.4	23.0	14.7	0.3	1.8	134.2	2481.2
11/20/2014	16.3	0.0	1.0	2329.9	2347.2	94.4	23.0	14.7	0.3	1.8	134.2	2481.4
12/4/2014	16.3	0.0	1.0	2330.1	2347.4	94.4	23.0	14.7	0.3	1.8	134.2	2481.6
12/18/2014	16.3	0.0	1.0	2330.3	2347.6	94.4	23.0	14.7	0.3	1.8	134.2	2481.8
1/15/2015	16.3	0.0	1.0	2330.5	2347.8	94.4	23.0	14.7	0.3	1.8	134.2	2482.0
1/31/2015	16.3	0.0	1.0	2330.7	2348.0	94.4	23.0	14.7	0.3	1.8	134.2	2482.2
2/11/2015	16.3	0.0	1.0	2330.8	2348.1	94.4	23.0	14.7	0.3	1.8	134.2	2482.3
2/26/2015	16.3	0.0	1.0	2331.0	2348.3	94.4	23.0	14.7	0.3	1.8	134.2	2482.5
3/16/2015	16.3	0.0	1.0	2331.2	2348.5	94.4	23.0	14.7	0.3	1.8	134.2	2482.7

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
3/27/2015	16.3	0.0	1.0	2331.4	2348.7	94.4	23.0	14.7	0.3	1.8	134.2	2482.9
4/10/2015	16.3	0.0	1.0	2331.6	2348.9	94.4	23.0	14.7	0.3	1.8	134.2	2483.1
4/20/2015	16.3	0.0	1.0	2331.8	2349.1	94.4	23.0	14.7	0.3	1.8	134.2	2483.3
5/8/2015	16.3	0.0	1.0	2332.0	2349.3	94.4	23.0	14.7	0.3	1.8	134.2	2483.5
5/21/2015	16.3	0.0	1.0	2332.2	2349.5	94.4	23.0	14.7	0.3	1.8	134.2	2483.7
6/12/2015	16.3	0.0	1.0	2332.4	2349.7	94.4	23.0	14.7	0.3	1.8	134.2	2483.9
6/26/2015	16.3	0.0	1.0	2332.6	2349.9	94.4	23.0	14.7	0.3	1.8	134.2	2484.1
7/10/2015	16.3	0.0	1.0	2332.8	2350.1	94.4	23.0	14.7	0.3	1.8	134.2	2484.3
7/20/2015	16.3	0.0	1.0	2333.0	2350.3	94.4	23.0	14.7	0.3	1.8	134.2	2484.5
8/7/2015	16.3	0.0	1.0	2333.2	2350.5	94.4	23.0	14.7	0.3	1.8	134.2	2484.7
8/21/2015	16.3	0.0	1.0	2333.4	2350.7	94.4	23.0	14.7	0.3	1.8	134.2	2484.9
9/4/2015	16.3	0.0	1.0	2333.6	2350.9	94.4	23.0	14.7	0.3	1.8	134.2	2485.1
9/14/2015	16.3	0.0	1.0	2333.8	2351.1	94.4	23.0	14.7	0.3	1.8	134.2	2485.3
10/9/2015	16.3	0.0	1.0	2334.0	2351.3	94.4	23.0	14.7	0.3	1.8	134.2	2485.5
10/19/2015	16.3	0.0	1.0	2334.2	2351.5	94.4	23.0	14.7	0.3	1.8	134.2	2485.7
11/6/2015	16.3	0.0	1.0	2335.0	2352.3	94.4	23.0	14.7	0.3	1.8	134.2	2486.5
11/25/2015	16.3	0.0	1.0	2338.4	2355.7	94.4	23.0	14.7	0.3	1.8	134.2	2489.9
12/11/2015	16.3	0.0	1.0	2347.1	2364.4	94.4	23.0	14.7	0.3	1.8	134.2	2498.6
12/23/2015	16.3	0.0	1.0	2350.2	2367.5	94.4	23.0	14.7	0.3	1.8	134.2	2501.7
1/8/2016	16.3	0.0	1.0	2353.4	2370.6	94.4	23.0	14.7	0.4	1.8	134.3	2504.9
1/18/2016	16.3	0.0	1.0	2353.7	2370.9	94.5	23.0	14.7	0.4	1.8	134.4	2505.3
2/5/2016	16.3	0.0	1.0	2355.5	2372.7	94.5	23.0	14.7	0.4	1.8	134.4	2507.1
2/17/2016	16.3	0.0	1.0	2357.5	2374.7	94.5	23.0	14.7	0.4	1.8	134.4	2509.2
3/11/2016	16.3	0.0	1.0	2359.5	2376.7	94.5	23.0	14.8	0.5	1.8	134.5	2511.3
3/29/2016	16.3	0.0	1.0	2359.5	2376.7	94.5	23.0	14.8	0.5	1.8	134.6	2511.3
4/12/2016	16.3	0.0	1.0	2364.3	2381.5	94.5	23.0	14.8	0.5	1.8	134.6	2516.1
4/19/2016	16.3	0.0	1.0	2367.2	2384.4	94.6	23.0	14.8	0.5	1.8	134.7	2519.1
5/9/2016	16.3	0.0	1.0	2368.6	2385.8	94.6	23.0	14.8	0.5	1.8	134.7	2520.5

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
5/20/2016	16.3	0.0	1.0	2370.5	2387.7	94.6	23.0	14.9	0.5	1.8	134.8	2522.5
6/7/2016	16.3	0.0	1.0	2370.5	2387.7	94.6	23.0	14.9	0.6	1.8	134.9	2522.6
6/24/2016	16.3	0.0	1.0	2371.3	2388.5	94.7	23.0	14.9	0.6	1.8	134.9	2523.5
7/5/2016	16.3	0.0	1.0	2372.3	2389.5	94.7	23.0	14.9	0.6	1.8	135.0	2524.5
7/21/2016	16.3	0.0	1.0	2372.7	2389.9	94.7	23.0	14.9	0.7	1.8	135.1	2525.0
8/5/2016	16.3	0.0	1.0	2372.8	2390.0	94.7	23.0	14.9	0.7	1.8	135.2	2525.3
8/18/2016	16.3	0.0	1.0	2375.4	2392.6	94.7	23.1	14.9	0.7	1.8	135.3	2527.9
9/2/2016	16.3	0.0	1.0	2376.6	2393.8	94.8	23.3	15.0	0.8	1.8	135.6	2529.5
9/23/2016	16.3	0.0	1.0	2377.0	2394.2	94.8	23.5	15.0	0.8	1.8	135.8	2530.1
10/7/16	16.3	0.0	1.0	2377.3	2394.5	94.8	24.5	15.0	0.8	1.8	136.9	2531.5
10/10/16	NA	NA	NA	NA	2394.5	N/A	27.5	N/A	N/A	N/A	136.9	2531.5
10/12/16	NA	NA	NA	NA	2394.5	N/A	28.5	N/A	N/A	N/A	136.9	2531.5
10/17/16	16.3	0.0	1.0	2378.3	2395.5	94.8	28.7	15.0	0.8	1.8	141.2	2536.7
11/11/16	16.3	0.0	1.0	2378.4	2395.6	94.8	31.7	15.0	0.9	1.8	144.3	2539.9
11/22/16	16.3	0.0	1.0	2378.4	2395.6	94.8	32.7	15.0	0.9	1.8	145.3	2541.0
12/9/16	16.3	0.0	1.0	2379.1	2396.3	94.8	33.6	15.0	0.9	1.8	146.3	2542.6
12/22/16	16.3	0.0	1.0	2379.6	2396.8	94.9	34.6	15.0	1.0	1.8	147.3	2544.2
1/6/17	16.3	0.0	1.0	2379.7	2396.9	94.9	35.1	15.0	1.0	1.8	147.8	2544.8
1/18/17	16.3	0.0	1.0	2379.7	2396.9	94.9	35.2	15.0	1.0	1.8	147.9	2544.9
2/3/17	16.3	0.0	1.0	2383.8	2401.0	94.9	35.5	15.1	1.0	1.8	148.2	2549.2
2/17/17	16.3	0.0	1.0	2385.4	2402.6	94.9	35.7	15.1	1.0	1.8	148.5	2551.1
3/10/17	16.3	0.0	1.0	2386.9	2404.1	94.9	35.7	15.1	1.0	1.8	148.6	2552.7
3/24/17	16.3	0.0	1.0	2388.5	2405.7	94.9	35.7	15.1	1.0	1.8	148.6	2554.3
4/7/17	16.3	0.0	1.0	2388.8	2406.0	94.9	35.8	15.1	1.0	1.8	148.6	2554.6
4/24/17	16.3	0.0	1.0	2389.3	2406.5	94.9	35.8	15.1	1.1	1.8	148.6	2555.2
5/12/17	16.3	0.0	1.0	2389.8	2407.0	94.9	35.8	15.1	1.1	1.8	148.7	2555.7
5/26/17	16.3	0.0	1.0	2395.6	2412.8	94.9	35.8	15.1	1.1	1.8	148.7	2561.5
6/2/17	16.3	0.0	1.0	2402.3	2419.5	94.9	35.8	15.1	1.1	1.8	148.7	2568.2

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	
6/23/17	16.3	0.0	1.0	2416.4	2433.6	94.9	35.8	15.1	1.1	1.8	148.8	2582.4
7/7/17	16.3	0.0	1.0	2432.9	2450.2	94.9	35.8	15.1	1.1	1.8	148.8	2599.0
7/25/17	16.3	0.0	1.0	2440.8	2458.1	94.9	35.8	15.1	1.2	1.8	148.8	2607.0
8/4/17	16.3	0.0	1.0	2443.3	2460.6	95.0	35.8	15.1	1.2	1.8	148.9	2609.5
8/18/17	16.3	0.0	1.0	2454.0	2471.3	95.0	35.8	15.1	1.2	1.8	149.0	2620.3
9/11/17	16.3	0.0	1.0	2476.1	2493.4	95.0	35.8	15.1	1.3	1.8	149.1	2642.6
9/22/17	16.3	0.0	1.0	2481.6	2498.9	95.0	35.8	15.1	1.3	1.8	149.1	2648.0
10/6/17	16.3	0.0	1.0	2481.9	2499.1	95.0	35.8	15.2	1.3	1.8	149.1	2648.3
10/23/17	16.3	0.0	1.0	2482.9	2500.2	95.0	35.9	15.2	1.3	1.8	149.2	2649.5
11/2/17	16.3	0.0	1.0	2483.1	2500.4	95.0	35.9	15.2	1.4	1.8	149.3	2649.7
11/27/17	16.3	0.0	1.0	2483.2	2500.5	95.0	35.9	15.2	1.4	1.8	149.3	2649.8
12/15/17	16.3	0.0	1.0	2483.2	2500.5	95.0	35.9	15.2	1.4	1.8	149.3	2649.8
12/29/17	16.3	0.0	1.0	2483.2	2500.5	95.0	35.9	15.2	1.4	1.8	149.4	2649.9

Table 3-3
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Date(1)	Cummulative Product Removed from Recovery Wells (Gallons)					Cummulative Product Removed from Monitoring Wells (Gallons)						Total Cummulative Product Recovered (Gallons)
	RW-1, RW-2 and RW-3 (2)	RW-4 (3)	RW-5 (4)	MW-100(5)	Total from Recovery Wells	Bulkhead Area (2)	RFI-7 / RW-5 Area (4)	ICM-1(6)	Boiler House and Lube Tank Areas	2001 Product Recharge Test	Total from Monitoring Wells	

Cumulative Product Removed per ICM Area (Gallons)	
Bulkhead Area	111
Siphon Building Area	0.0
RFI-7 / RW-5 / MW-100 North Beach Area	2,520
Boiler House and Lube Tank Areas	1.4
Ship Berth #3 / ICM-1 Area	15.2

Notes:

(1) The date of monthly ICM O&M and monitoring visit is presented in this column; however, cumulative product volume presented includes product recovered from manual and automated methods during the entire month indicated.

(2) Bulkhead Area Thermal Enhanced Product Recovery System. Monitoring wells routinely monitored in this area include TMP-1, TMP-2, TMP-3, LC-1, LC-2, ICM-7 and ICM-10.

(3) RW-4 was installed near the Siphon Building in January 1998.

(4) Product sheen was first recorded in this area in March 2001 at RFI-7 located near the North Beach Area. RFI-7 was included in the Product Recharge Test initiated October 2001. Hand bailing started in March 2002. A new product recovery well and interceptor trench, RW-5, was installed down-gradient of RFI-7 in July 2002. Totals from this area include product removal from RFI-7 and MW-102 (manual removal and additional pilot tested Magnum Spill Buster System.)

(5) Monitoring well MW-100 was installed downgradient of RFI-7 / RW-5 area in January 2003 and manual product removal began in February 2003. A Magnum Spill Buster system was installed and activated in MW-100 on May 22, 2003. The Spill Buster was removed on July 18, 2012, and re-installed on Novebmer 18. 2015.

(6) Approximately 15,419 gallons of product was also removed from ICM-1 by Kinder Morgan during emergency spill response activities in April 2007 (not included with above totals).

Table 3-4
Product/Sheen in Wells (2014-2017)
Annual Progress Report for 2017
Kinder Morgan Liquids Terminals (Former Port Mobil Terminal)
Staten Island, NY

Q1 2014

	1/8/2014		1/27/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.12	1-1/2"	0.14	1- 5/8"	Large absorbent sock
MW-102	Sheen	Sheen	ND	ND	
ICM-1	Sheen	Sheen	ND	ND	
TMP-1	ND	ND	ND	ND	
SVE-BH1	ND	ND	Sheen	Sheen	
SVE-BH2	ND	ND	Sheen	Sheen	
MW-LT2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.45	5- 3/8"	0.34	4- 1/8"	Large absorbent sock

	2/12/2014		2/27/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.3	3- 5/8"	0.36	4- 3/8"	Large absorbent sock
ICM-1	ND	ND	ND	ND	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	ND	ND	Sheen	Sheen	
SVE-BH2	ND	ND	Sheen	Sheen	
MW-100	0.28	3- 3/8"	0.2	2- 3/8"	Large absorbent sock

	3/21/2014		3/24/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.13	1- 1/2"	Sheen	Sheen	Large absorbent sock
MW-102	ND	ND	ND	ND	
ICM-1	ND	ND	Sheen	Sheen	
ICM-10	ND	ND	Sheen	Sheen	
TMP-1	ND	ND	ND	ND	
SVE-BH1	ND	ND	ND	ND	
SVE-BH2	ND	ND	ND	ND	
MW-100	0.12	1- 1/2"	0.24	2- 7/8"	Large absorbent sock

Q2 2014

	4/14/2014		4/30/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.06	3/4"	0.05	5/8"	Small absorbent sock
MW-117	ND	ND	Sheen	Sheen	
ICM-1	ND	ND	Sheen	Sheen	
ICM-10	ND	ND	Sheen	Sheen	
TMP-1	0.07	7/8"	Sheen	Sheen	Small absorbent sock
RW-5	ND	ND	Sheen	Sheen	
SVE-BH1	ND	ND	Sheen	Sheen	
MW-100	0.6	7- 1/4"	0.05	5/8"	Large absorbent sock

	5/14/2014		5/27/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.02	1/4"	Sheen	Sheen	Small absorbent sock
ICM-1	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	0.03	3/8"	Small absorbent sock
SVE-BH1	ND	ND	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.65	7- 3/4"	0.72	8-5/8"	Large absorbent sock

	6/11/2014		6/25/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	
MW-102	Sheen	Sheen	ND	ND	
ICM-1	Sheen	Sheen	Sheen	Sheen	
ICM-10	Sheen	Sheen	ND	ND	
TMP-1	0.01	1/8"	Sheen	Sheen	Small absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	0.15	1 - 3/4"	Sheen	Sheen	Small absorbent sock
MW-100	0.01	1/8"	ND	ND	Large absorbent sock

Q3 2014

	7/9/2014		7/22/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	
ICM-1	Sheen	Sheen	Sheen	Sheen	
ICM-10	ND	ND	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.13	1- 1/2"	0.77	9- 1/4"	Large absorbent sock
LC-1	ND	ND	Sheen	Sheen	

	8/6/2014		8/20/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	
ICM-1	ND	ND	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
MW-100	0.82	9- 7/8"	0.88	10- 1/2"	Large absorbent sock
LC-1	ND	ND	Sheen	Sheen	

	9/3/2014		9/17/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.03	3/8"	Sheen	Sheen	Large absorbent sock
MW-102	0.09	1- 1/8"	Sheen	Sheen	Small absorbent sock
ICM-1	Not accessible	Not accessible	Sheen	Sheen	
TMP-1	0.02	1/4"	Sheen	Sheen	Small absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.86	10- 3/8"	0.76	9- 1/8"	Large absorbent sock

Q4 2014

	10/3/2014		10/16/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	
MW-102	0.04	1/2"	ND	ND	
ICM-1	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.77	9- 1/4"	0.79	9- 1/2"	Large absorbent sock

	11/6/2014		11/20/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	ND	ND	Sheen	Sheen	
MW-102	ND	ND	Sheen	Sheen	
MW-117	NA	NA	Sheen	Sheen	
ICM-1	ND	ND	Sheen	Sheen	
TMP-1	ND	ND	Sheen	Sheen	
SVE-BH1	ND	ND	Sheen	Sheen	
SVE-BH2	ND	ND	Sheen	Sheen	
MW-100	0.05	5/8"	Sheen	Sheen	Large absorbent sock
LC-1	ND	ND	Sheen	Sheen	

	12/4/2014		12/18/2014		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.05	5/8"	Sheen	Sheen	
ICM-1	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.63	7- 1/2"	0.54	6- 1/2"	Large absorbent sock

WELLS WITH PRODUCT/SHEEN 2014

ICM-10	Near Area 1	Bulkhead ICM
LC-1	Area 1	Bulkhead ICM
RFI-7	Area 3	Near Tank 60
MW-102	Area 3	Near Tank 60
MW-100	Area 3	Near Tank 60
TMP-1	Area 4	Bulkhead recovery
NW-117	Area 4	Bulkhead recovery
SVE-BH1	Area 5	Boiler house
SVE-BH2	Area 5	Boiler house
MW-LT2	Area 6	Former Lube Tank
ICM-1	Near Area 7	Northern Bulkhead

Table 3-4
Product/Sheen in Wells (2014-2017)
Annual Progress Report for 2017
Kinder Morgan Liquids Terminals (Former Port Mobil Terminal)
Staten Island, NY

Q1 2015

	01/15/15		01/29/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.38	4-1/2"	0.08	1"	Large absorbent sock

	02/11/15		02/26/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	0.09	1-1/8"	Small absorbent sock
ICM-1	ND	NA	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	NM	NA	
SVE-BH2	NM	NA	NM	NM	
MW-100	0.35	4-1/4"	0.41	4-7/8"	Small absorbent sock

	03/16/15		03/27/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Flooded	NA	Sheen	Sheen	
SVE-BH2	Flooded	NA	ND	NA	
MW-100	0.71	8-1/2"	0.48	5-3/4"	Large absorbent sock

Q2 2015

	04/10/15		04/20/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	ND	NA	
ICM-1	ND	NA	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.47	5-5/8"	0.12	1-1/2"	Large absorbent sock

	05/08/15		05/21/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.02	0 1/4"	Sheen	N/A	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.67	8 "	0.54	6-1/2"	Large absorbent sock

	06/12/15		06/26/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	0.02	1/4"	
ICM-1	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.61	7-3/8"	0.64	7-5/8"	Large absorbent sock

Q3 2015

	07/10/15		07/20/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	Sheen	Sheen	
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.65	7-3/4"	0.58	7"	Large absorbent sock
MW-102	Sheen	Sheen	ND	ND	
MW-LT2	Sheen	Sheen	ND	ND	

	08/07/15		08/21/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	Sheen	Sheen	
RFI-7	0.06	3/4"	3/4	0.06	Small Absorbent sock
TMP-1	Sheen	Sheen	ND	ND	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.71	8-1/2"	0.77	9-1/4"	Large absorbent sock
MW-102	Sheen	Sheen	.02	1/4	Small Absorbent sock

	09/04/15		09/14/15		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	ND	ND	
RFI-7	0.05	5/8	Sheen	Sheen	Small Absorbent sock
TMP-1	Sheen	Sheen	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	
MW-100	0.95	11-3/8"	0.94	11-1/4"	Large absorbent sock

Q4 2015

	10/09/15		10/19/2015		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	0.05	5/8"	
ICM-1	Sheen	Sheen	ND	ND	
TMP-1	Sheen	Sheen	ND	ND	
SVE-BH1	Sheen	Sheen	ND	ND	
SVE-BH2	Sheen	Sheen	ND	ND	
MW-100	0.77	9-1/4"	0.54	6-1/2"	Large absorbent sock

	11/6/2015		11/25/2015		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	ND	ND	0.03	3/8"	
TMP-1	Sheen	Sheen	0.01	1/8"	
ICM-1	ND	ND	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	Sheen	Sheen	0.04	3/4"	
MW-100	0.46	5-1/2"	0.05	5/8"	Spill Buster installed 11/18/15

	12/11/2015		12/23/2015		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	ND	ND	
ICM-1	Sheen	Sheen	Sheen	Sheen	
TMP-1	0.01	1/8"	Sheen	Sheen	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	
SVE-BH2	0.01	1/8"	Sheen	Sheen	
MW-100	0.21	2-1/2"	0.12	1-1/2"	Spill Buster Operating

WELLS WITH PRODUCT/SHEEN 2015

RFI-7	Area 3	Near Tank 60
MW-100	Area 3	Near Tank 60
TMP-1	Area 4	Bulkhead recovery
SVE-BH1	Area 5	Boiler house
SVE-BH2	Area 5	Boiler house
MW-LT2	Area 6	Former Lube Tank
ICM-1	Near Area 7	Northern Bulkhead

Table 3-4
Product/Sheen in Wells (2014-2017)
Annual Progress Report for 2017
Kinder Morgan Liquids Terminals (Former Port Mobil Terminal)
Staten Island, NY

Q1 2016

	01/08/16		01/18/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
TMP-1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
MW-100	0.1	1.2	0.06	0.72	Spill Buster Operating

	02/05/16		02/17/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	ND	ND	Large absorbent sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Large and small absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Large and small absorbent sock
MW-100	0.02	0.24	0.02	0.24	Spill Buster Operating

	03/11/16		03/29/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	ND	ND	Small absorbent sock
ICM-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
MW-100	0.03	0.36	0.36	4.32	Spill Buster Operating

Q2 2016

	04/12/16		04/19/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
SVE-BH1	Sheen	Sheen	ND	ND	Large absorbent sock
SVE-BH2	Sheen	Sheen	ND	ND	Small and large absorbent sock
MW-100	0.05	0.60	0.08	0.96	Spill Buster Operating

	05/09/16		05/20/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
MW-100	0.51	6.12	0.04	0.48	Spill Buster Operating

	06/07/16		06/24/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
SVE-BH1	Sheen	Sheen	ND	ND	Small and large absorbent sock
SVE-BH2	Sheen	Sheen	ND	ND	Large absorbent sock
MW-100	0.26	3.12	0.49	5.88	Spill Buster Operating

Q3 2016

	07/05/16		07/20/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	Sheen	Sheen	Large and small absorbent sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Large and small absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Large and small absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Large and small absorbent sock
MW-100	0.56	6.72	0.83	9.96	Spill Buster Operating

	08/05/16		08/18/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
RFI-7	Sheen	Sheen	0.01	0.12	Small and large absorbent sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Small and large absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Small and large absorbent sock
MW-100	0.86	10.32	0.77	9.24	

	09/02/16		09/23/16		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
ICM-1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
RFI-7	Sheen	Sheen	0.47	5.64	
TMP-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
MW-100	0.91	10.92	0.98	11.76	

Q4 2016

	10/07/16		10/17/2016		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.67	8.04	0.32	3.84	Large absorbent sock
ICM-1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
TMP-1	ND	ND	Sheen	Sheen	Large absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
MW-100	0.58	6.96	0.04	0.48	

	11/11/2016		11/22/2016		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.74	8.88	0.47	5.64	
TMP-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
ICM-1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Small absorbent sock
MW-100	0	0	0.03	0.36	

	12/9/2016		12/22/2016		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.46	5.52	0.49	5.88	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Large absorbent sock
MW-100	0.02	0.24	0.02	0.24	

WELLS WITH PRODUCT/SHEEN 2016

RFI-7	Area 3	Near Tank 60
MW-100	Area 3	Near Tank 60
TMP-1	Area 4	Bulkhead recovery
SVE-BH1	Area 5	Boiler house
SVE-BH2	Area 5	Boiler house
MW-LT2	Area 6	Former Lube Tank
ICM-1	Near Area 7	Northern Bulkhead

Table 3-4
Product/Sheen in Wells (2014-2017)
Annual Progress Report for 2017
Kinder Morgan Liquids Terminals (Former Port Mobil Terminal)
Staten Island, NY

Q1 2017

	1/6/2017		1/18/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.5	6"	0.11	1-1/3"	Peristaltic Pump
ICM-1	ND	ND	ND	ND	
TMP-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.06	2/3"	0.53	6-1/3"	Spill Buster Operating

	2/3/2017		2/17/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.13	1-1/2"	0.05	2/3"	Peristaltic Pump
ICM-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.08	1"	ND	ND	Spill Buster Operating

	3/10/2017		3/24/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.02	1/4"	ND	ND	Peristaltic Pump
ICM-1	Sheen	Sheen	ND	ND	Absorbent Sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.05	2/3"	0.14	1-2/3"	Spill Buster Operating

WELLS WITH PRODUCT/SHEEN 2017

RFI-7	Area 3	Near Tank 60
MW-100	Area 3	Near Tank 60
TMP-1	Area 4	Bulkhead recovery
SVE-BH1	Area 5	Boiler house
SVE-BH2	Area 5	Boiler house
ICM-1	Near Area 7	Northern Bulkhead
ICM-10	Near Area 1	Bulkhead ICM

Q2 2017

	4/7/2017		4/24/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.10	1-1/4"	0.01	1/8"	Absorbent Sock
ICM-1	ND	ND	ND	ND	
TMP-1	ND	ND	ND	ND	
SVE-BH1	ND	ND	ND	ND	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	ND	ND	ND	ND	Spill Buster Operating

	5/12/2017		5/26/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	ND	ND	Absorbent Sock
ICM-1	Sheen	Sheen	ND	ND	Absorbent Sock
TMP-1	ND	ND	ND	ND	
SVE-BH1	ND	ND	ND	ND	
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.01	1/8"	0.1	1-1/4"	Spill Buster Operating

	6/2/2017		6/23/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
ICM-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
TMP-1	ND	ND	ND	ND	
SVE-BH1	ND	ND	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.02	1/4"	0.1	1-1/4"	Spill Buster Operating

Q3 2017

	7/7/2017		7/25/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	ND	ND	Sheen	Sheen	Absorbent Sock
ICM-1	ND	ND	Sheen	Sheen	Absorbent Sock
ICM-10	ND	ND	Sheen	Sheen	Absorbent Sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	ND	ND	Sheen	Sheen	Absorbent Sock
MW-100	0.39	4-2/3"	0.12	1-1/2"	Spill Buster Operating

	8/4/2017		8/18/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	0.01	1/8"	Sheen	Sheen	Absorbent Sock
ICM-1	Sheen	Sheen	ND	ND	Absorbent Sock
ICM-10	ND	ND	Sheen	Sheen	Absorbent Sock
TMP-1	0.01	1/8"	Sheen	Sheen	Absorbent Sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.06	3/8"	ND	ND	Spill Buster Operating

	9/11/2017		9/22/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	Sheen	Sheen	ND	ND	Absorbent Sock
ICM-1	ND	ND	Sheen	Sheen	Absorbent Sock
ICM-10	ND	ND	Sheen	Sheen	Absorbent Sock
TMP-1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.15	1-3/4"	0.06	3/4"	Spill Buster Operating

Q4 2017

	10/6/2017		10/23/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	ND	ND	0.09	1-1/8"	Absorbent Sock
ICM-1	Sheen	Sheen	ND	ND	
TMP-1	ND	ND	ND	ND	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.01	1/8"	0.04	1/2"	Spill Buster Operating

	11/2/2017		11/27/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	ND	ND	0.01	1/8"	
ICM-1	ND	ND	ND	ND	
TMP-1	ND	ND	ND	ND	
SVE-BH1	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	0.03	1/3"	0.02	1/4"	Spill Buster Operating

	12/15/2017		12/29/2017		
	(Feet)	(inches)	(Feet)	(inches)	Mitigation
RFI-7	ND	ND	ND	ND	
ICM-1	ND	ND	ND	ND	
TMP-1	ND	ND	ND	ND	
SVE-BH1	Sheen	Sheen	ND	ND	Absorbent Sock
SVE-BH2	Sheen	Sheen	Sheen	Sheen	Absorbent Sock
MW-100	ND	ND	0.25	3"	Spill Buster Offline

Table 4-1
2017 MNA Groundwater Elevation Data
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well	Date	Measuring Point Elevaton (ft-msl)	Depth to Product (ft-bmp)	Depth to Water (ft-bmp)	Water Elevation (ft-msl)
I-1	01/18/17	24.05	-	6.95	17.10
	04/24/17	24.05	-	6.65	17.40
	07/25/17	24.05	-	6.30	17.75
	10/23/17	24.05	-	7.04	17.01
I-2	01/18/17	26.15	-	6.85	19.30
	04/24/17	26.15	-	6.47	19.68
	07/25/17	26.15	-	5.85	20.30
	10/23/17	26.15	-	7.51	18.64
I-3	01/18/17	26.75	-	5.80	20.95
	04/24/17	26.75	-	5.92	20.83
	07/25/17	26.75	-	5.52	21.23
	10/23/17	26.75	-	6.76	19.99
I-5	01/18/17	44.70	-	18.97	25.73
	04/24/17	44.70	-	17.41	27.29
	07/25/17	44.70	-	16.86	27.84
	10/23/17	44.70	-	17.64	27.06
I-6	01/18/17	42.71	-	29.27	13.44
	04/24/17	42.71	-	29.00	13.71
	07/25/17	42.71	-	28.44	14.27
	10/23/17	42.71	-	28.56	14.15
ICM-1	01/18/17	7.61	-	5.39	2.22
	04/24/17	7.61	-	5.88	1.73
	07/25/17	7.61	-	5.22	2.39
	10/23/17	7.61	-	6.15	1.46
ICM-2	01/18/17	8.06	-	5.45	2.61
	04/24/17	8.06	-	5.75	2.31
	07/25/17	8.06	-	5.01	3.05
	10/23/17	8.06	-	6.34	1.72
ICM-3	01/18/17	8.84	-	7.06	1.78
	04/24/17	8.84	-	7.10	1.74
	07/25/17	8.84	-	6.48	2.36
	10/23/17	8.84	-	7.83	1.01
ICM-5	01/18/17	8.01	-	6.03	1.98
	04/24/17	8.01	-	6.14	1.87
	07/25/17	8.01	-	5.93	2.08
	10/23/17	8.01	-	7.01	1.00
ICM-6	01/18/17	13.33	-	5.71	7.62
	04/24/17	13.33	-	5.15	8.18
	07/25/17	13.33	-	4.72	8.61
	10/23/17	13.33	-	5.27	8.06

Table 4-1
2017 MNA Groundwater Elevation Data
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well	Date	Measuring Point Elevaton (ft-msl)	Depth to Product (ft-bmp)	Depth to Water (ft-bmp)	Water Elevation (ft-msl)
ICM-7	01/18/17	8.06	-	5.88	2.18
	04/24/17	8.06	-	6.12	1.94
	07/25/17	8.06	-	6.17	1.89
	10/23/17	8.06	-	7.42	0.64
ICM-9	01/18/17	2.97	-	0.60	2.37
	04/24/17	2.97	-	0.81	2.16
	07/25/17	2.97	-	1.49	1.48
	10/23/17	2.97	-	2.43	0.54
ICM-10	01/18/17	3.58	-	1.61	1.97
	04/24/17	3.58	-	1.84	1.74
	07/25/17	3.58	-	2.42	1.16
	10/23/17	3.58	-	3.28	0.30
KM-GP5	01/18/17	NA	-	1.11	NA
	04/24/17	NA	-	1.43	NA
	07/25/17	NA	-	1.62	NA
	10/23/17	NA	-	3.01	NA
KM-GP13	01/18/17	NA	-	12.21	NA
	04/24/17	NA	-	11.72	NA
	07/25/17	NA	-	11.55	NA
	10/23/17	NA	-	12.42	NA
L-2	01/18/17	16.27	-	5.90	10.37
	04/24/17	16.27	-	5.63	10.64
	07/25/17	16.27	-	5.31	10.96
	10/23/17	16.27	-	6.33	9.94
L-8	01/18/17	9.27	-	3.05	6.22
	04/24/17	9.27	-	3.36	5.91
	07/25/17	9.27	-	4.08	5.19
	10/23/17	9.27	-	4.16	5.11
L-14	01/18/17	7.94	-	2.51	5.43
	04/24/17	7.94	-	2.48	5.46
	07/25/17	7.94	-	2.60	5.34
	10/23/17	7.94	-	2.87	5.07
L-20[(1)]	01/18/17	12.98	-	3.37	9.61
	04/24/17	12.98	-	3.55	9.43
	07/25/17	12.98	-	3.80	9.18
	10/23/17	12.98	-	3.97	9.01
L-27	01/18/17	NA	-	2.12	NA
	04/24/17	NA	-	2.51	NA
	07/25/17	NA	-	2.95	NA
	10/23/17	NA	-	9.49	NA

Table 4-1
2017 MNA Groundwater Elevation Data
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well	Date	Measuring Point Elevaton (ft-msl)	Depth to Product (ft-bmp)	Depth to Water (ft-bmp)	Water Elevation (ft-msl)
L-34	01/18/17	20.13	-	8.39	11.74
	04/24/17	20.13	-	8.49	11.64
	07/25/17	20.13	-	8.96	11.17
	10/23/17	20.13	-	9.52	10.61
MH-1R	01/18/17	6.93	-	5.05	1.88
	04/24/17	6.93	-	5.39	1.54
	07/25/17	6.93	-	4.77	2.16
	10/23/17	6.93	-	5.47	1.46
MW-100	01/18/17	NA	-	11.62	NA
	04/24/17	NA	-	11.45	NA
	07/25/17	NA	11.00	11.12	NA
	10/23/17	NA	11.42	11.46	NA
MW-103	01/18/17	18.56	-	6.45	12.11
	04/24/17	18.56	-	6.12	12.44
	07/25/17	18.56	-	5.93	12.63
	10/23/17	18.56	-	6.27	12.29
MW-107	01/18/17	38.57	-	18.14	20.43
	04/24/17	38.57	-	17.47	21.10
	07/25/17	38.57	-	17.04	21.53
	10/23/17	38.57	-	17.63	20.94
MW-109	01/18/17	36.11	-	11.77	24.34
	04/24/17	36.11	-	11.19	24.92
	07/25/17	36.11	-	10.30	25.81
	10/23/17	36.11	-	10.56	25.55
MW-110	01/18/17	36.19	NM	NM	NA
	04/24/17	36.19	-	6.64	29.55
	07/25/17	36.19	NM	NM	NA
	10/23/17	36.19	-	7.22	28.97
MW-111	01/18/17	39.07	-	30.79	8.28
	04/24/17	39.07	-	30.09	8.98
	07/25/17	39.07	-	29.55	9.52
	10/23/17	39.07	-	30.01	9.06
MW-112	01/18/17	37.12	NM	NM	NA
	04/24/17	37.12	-	4.40	32.72
	07/25/17	37.12	-	2.48	34.64
	10/23/17	37.12	-	5.16	31.96
MW-113	01/18/17	6.56	-	3.34	3.22
	04/24/17	6.56	-	3.39	3.17
	07/25/17	6.56	-	3.29	3.27
	10/23/17	6.56	-	4.57	1.99

Table 4-1
2017 MNA Groundwater Elevation Data
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well	Date	Measuring Point Elevaton (ft-msl)	Depth to Product (ft-bmp)	Depth to Water (ft-bmp)	Water Elevation (ft-msl)
MW-114	01/18/17	18.18	-	10.31	7.87
	04/24/17	18.18	-	9.74	8.44
	07/25/17	18.18	-	9.24	8.94
	10/23/17	18.18	-	9.95	8.23
MW-116	01/18/17	17.61	-	10.38	7.23
	04/24/17	17.61	-	9.06	8.55
	07/25/17	17.61	-	9.78	7.83
	10/23/17	17.61	-	9.90	7.71
MW-117	01/18/17	7.47	-	5.39	2.08
	04/24/17	7.47	-	5.54	1.93
	07/25/17	7.47	-	5.34	2.13
	10/23/17	7.47	-	6.60	0.87
MW-118	01/18/17	NA	-	7.85	NA
	04/24/17	NA	-	8.10	NA
	07/25/17	NA	-	8.59	NA
	10/23/17	NA	-	9.56	NA
N-42	01/18/17	8.75	-	6.47	2.28
	04/24/17	8.75	-	6.47	2.28
	07/25/17	8.75	-	6.02	2.73
	10/23/17	8.75	-	7.39	1.36
N-43	01/18/17	6.44	-	3.78	2.66
	04/24/17	6.44	-	4.13	2.31
	07/25/17	6.44	-	3.33	3.11
	10/23/17	6.44	-	4.69	1.75
OW/MW-3	01/18/17	3.56	-	0.88	2.68
	04/24/17	3.56	-	1.59	1.97
	07/25/17	3.56	-	1.29	2.27
	10/23/17	3.56	NM	NM	NA
RFI-1	01/18/17	26.34	-	6.13	20.21
	04/24/17	26.34	-	6.99	19.35
	07/25/17	26.34	-	7.22	19.12
	10/23/17	26.34	-	8.13	18.21
RFI-2	01/18/17	59.41	-	15.54	43.87
	04/24/17	59.41	-	12.65	46.76
	07/25/17	59.41	-	10.70	48.71
	10/23/17	59.41	-	12.45	46.96
RFI-4	01/18/17	51.11	-	5.96	45.15
	04/24/17	51.11	-	5.30	45.81
	07/25/17	51.11	-	4.21	46.90
	10/23/17	51.11	-	5.86	45.25

Table 4-1
2017 MNA Groundwater Elevation Data
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well	Date	Measuring Point Elevaton (ft-msl)	Depth to Product (ft-bmp)	Depth to Water (ft-bmp)	Water Elevation (ft-msl)
RFI-6	01/18/17	16.05	-	7.38	8.67
	04/24/17	16.05	-	6.75	9.30
	07/25/17	16.05	-	6.25	9.80
	10/23/17	16.05	-	6.69	9.36
RFI-7	01/18/17	23.30	10.26	10.37	12.93
	04/24/17	23.30	9.88	9.89	13.41
	07/25/17	23.30	-	9.18	14.12
	10/23/17	23.30	10.03	10.12	13.18
RFI-8R	01/18/17	5.40	-	3.52	1.88
	04/24/17	5.40	-	4.36	1.04
	07/25/17	5.40	-	3.31	2.09
	10/23/17	5.40	-	4.41	0.99
RFI-9	01/18/17	2.88	-	0.78	2.10
	04/24/17	2.88	-	0.70	2.18
	07/25/17	2.88	-	0.20	2.68
	10/23/17	2.88	-	1.35	1.53
RFI-11	01/18/17	7.97	-	1.69	6.28
	04/24/17	7.97	-	2.91	5.06
	07/25/17	7.97	-	1.97	6.00
	10/23/17	7.97	-	2.76	5.21
RW-1A	01/18/17	17.73	-	5.60	12.13
	04/24/17	17.73	-	5.38	12.35
	07/25/17	17.73	-	5.13	12.60
	10/23/17	17.73	-	10.81	6.92

Notes:

ft-msl = feet in relation to mean sea level

ft-bmp = Feet below measuring point

NA = Not available / not applicable

NM = Not measured / not accessible

"---" = Not detected

(1) L-20 is not an MNA program well; however, gauging results are presented here due to it proximity of MNA well L-27 which has not been surveyed for measuring point elevation.

Table 4-2
2017 MNA Groundwater Analysis Results - BTEX, MTBE, TEAP
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		ICM-1				ICM-3	ICM-5	ICM-6		ICM-7	ICM-9		ICM-10	I-1	I-2	I-3	I-5	
		1/19/17	4/28/17	7/26/17	10/25/17	10/25/17	10/25/17	4/26/17	10/25/17	10/25/17	4/27/17	10/24/17	10/25/17	10/27/17	10/27/17	10/27/17	4/26/17	10/24/17
TEAP (mg/L)	Nitrate Nitrogen	---	---	---	< 0.016	< 0.016	< 0.016	---	< 0.016	< 0.016	---	< 0.016	< 0.016	< 0.016	0.20	< 0.016	---	< 0.016
	Nitrite Nitrogen	---	---	---	< 0.019	< 0.019	< 0.019	---	< 0.019	< 0.019	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	---	< 0.019
	Dissolved Oxygen	---	---	---	< 1.0 H	< 1.0 H	< 1.0 H	---	< 1.0 H	< 1.0 H	---	< 1.0 H	< 1.0 H	1.5 H	< 1.0 H	< 1.0	---	< 1.0 H
	Sulfate (turbidimetric)	---	---	---	0.85	5.94	0.81	---	< 0.33	9.3	---	0.88	0.84	15.2	4.9	0.94	---	28.6
	Ferrous Iron	---	---	---	7.5 J	0.10 U	1.7 J	---	24.9 J	0.10 U	---	0.27 J	5.6 J	0.0087 UJ	0.10 U	0.18 J+	---	4.7 J
	CO2 by Headspace 8015C/D	---	---	---	89	70	76	---	92	69	---	95	73	83	78	56	---	150
	Methane	---	---	---	16	2.7	18	---	21	5.4	---	6.7	17	< 0.005	0.95	0.23	---	2.5
BTEX (ug/L)	Benzene	0.98 J	0.92 J	0.48 J	0.39 J	< 0.09	0.17 J	73	61	2.9	2.0	1.5	2.2	< 0.09	< 0.09	< 0.09	38	6.2
	Toluene	0.39 J	0.39 J	0.51 J	0.36 J	< 0.25	< 0.25	320	150	< 0.25	1.9	1.2	1.1	< 0.25	< 0.25	< 0.25	2.1	0.49 J
	Ethylbenzene	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	370	810	2.0	1.9	0.76 J	0.94 J	< 0.30	< 0.30	< 0.30	68	3.9
	Total xylenes	0.35 J	0.39 J	0.46 J	0.41 J	< 0.28	< 0.28	430	550	7.6	4.3	3.7	3.4	< 0.28	< 0.28	< 0.28	7.7	1.2 J
	Total BTEX	1.72	1.7	1.45	1.16	ND	0.17	1193	1571	12.5	10.1	7.16	7.64	ND	ND	ND	115.8	11.79
MTBE (ug/L)	MTBE	2.3	3.0	1.9	2.1	<0.13	14	1.3 J	1.4 J	< 0.13	0.75 J	0.75 J	4.5	14	< 0.13	130	26	92

Table 4-2
2017 MNA Groundwater Analysis Results - BTEX, MTBE, TEAP
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		I-6		KM-GP5		KM-GP13		MW-103								MW-107	MW-109	MW-110
		4/28/17	10/27/17	4/25/17	10/24/17	4/25/17	10/24/17	1/20/17	1/20/17[(1)]	4/27/17	4/27/17[(1)]	7/27/17	7/27/17[(1)]	10/27/17	10/27/17[(1)]	10/27/17	10/26/17	10/26/17
TEAP (mg/L)	Nitrate Nitrogen	---	< 0.016	---	< 0.016	---	< 0.016	---	---	---	---	---	---	< 0.016	< 0.016	0.89	< 0.016	< 0.016
	Nitrite Nitrogen	---	< 0.019	---	< 0.019	---	< 0.019	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019
	Dissolved Oxygen	---	< 1.0	---	< 1.0 H	---	< 1.0 H	---	---	---	---	---	---	< 1.0 H	< 1.0	2.6 H	< 1.0 H	< 1.0 H
	Sulfate (turbidimetric)	---	1.22	---	< 0.33	---	0.84	---	---	---	---	---	---	0.94	0.93	3.0	16.9	20.2
	Ferrous Iron	---	12.5 J	---	0.21 J	---	34.7 J	---	---	---	---	---	---	0.0087 UJ	0.10 U	0.0087 UJ	2.0 J	1.9 J
	CO2 by Headspace 8015C/D	---	230	---	79	---	700	---	---	---	---	---	---	35	30	130	180	33
	Methane	---	10	---	25	---	7.8	---	---	---	---	---	---	4.7	5.0	0.03	0.59	0.019
BTEX (ug/L)	Benzene	24	17	7,400	6,000	190	770	2.6	2.6	0.53 J	0.58 J	< 0.09	< 0.09	8.6	9.3	0.18 J	< 0.09	< 0.09
	Toluene	4.4	4.5	210	210	160	560	41	39	11	13	19	20	36 J	54 UJ	< 0.25	< 0.25	< 0.25
	Ethylbenzene	1,100	940	210	110	170	300	92	88	53	58	44	44	66 J	100 UJ	< 0.30	< 0.30	< 0.30
	Total xylenes	1,300	1,900	130	72	340	790	310	290	170	190	150	150	180 J	270 UJ	< 0.28	< 0.28	< 0.28
	Total BTEX	2,428.4	2,861.5	7,950	6,392	860	2420	446	420	234.53	261.58	213	214	290.6	9.3	0.18	ND	ND
MTBE (ug/L)	MTBE	3.4	4.3 J	21	18 J	0.21 J	0.39 J	0.28 J	0.38 J	0.35 J	0.37 J	< 0.13	< 0.13	< 0.13	< 0.13	1.8	0.99 J	97

Table 4-2
2017 MNA Groundwater Analysis Results - BTEX, MTBE, TEAP
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		MW-111		MW-112	MW-113						MW-114	MW-116		MW-117			
		4/27/17	10/26/17	10/25/17	1/20/17	4/25/17	4/25/17[1]	7/27/17	10/24/17	10/24/17[1]	10/24/17	4/25/17	10/26/17	1/19/17	4/26/17	7/26/17	10/25/17
TEAP (mg/L)	Nitrate Nitrogen	---	< 0.016	1.46	---	---	---	---	< 0.016	< 0.016	6.98 J	---	< 0.016	---	---	---	0.48
	Nitrite Nitrogen	---	< 0.019	< 0.019	---	---	---	---	< 0.019	< 0.019	< 0.019	---	< 0.019	---	---	---	< 0.019
	Dissolved Oxygen	---	< 1.0 H	1.6 H	---	---	---	---	< 1.0 H	< 1.0 H	< 1.0 H	---	< 1.0 H	---	---	---	< 1.0 H
	Sulfate (turbidimetric)	---	3.6	17.4	---	---	---	---	0.81	< 0.33	18.1	---	0.97	---	---	---	4.61
	Ferrous Iron	---	0.0087 UJ	0.0087 UJ	---	---	---	---	0.41 J	0.18 J	0.0087 J	---	0.14 R	---	---	---	3.4 J
	CO2 by Headspace 8015C/D	---	110	26	---	---	---	---	83	76	38	---	190	---	---	---	70
	Methane	---	5.6	< 0.0017	---	---	---	---	25	26	0.0049 J	---	14	---	---	---	4.4
BTEX (ug/L)	Benzene	180	66	< 0.09	12,000	8,200	9,400	9,000	8,200	7,400	< 0.09	130	210	< 0.09	< 0.09	< 0.09	< 0.09
	Toluene	8.2	2.2	< 0.25	97	120	130	130	120	110	< 0.25	5.8	13	< 0.25	< 0.25	< 0.25	< 0.25
	Ethylbenzene	74	12	< 0.30	1,100	1,400	1,700	1,400	1,300	1,200	< 0.30	1.4	1.5	< 0.30	< 0.30	< 0.30	< 0.30
	Total xylenes	13	3.9	< 0.28	94	120	150	200	140	130	< 0.28	2.7	5.7	< 0.28	< 0.28	< 0.28	< 0.28
	Total BTEX	275.2	84.1	ND	13,291	9,840	11,380	10,730	9,760	8,840	ND	139.9	230.2	ND	ND	ND	ND
MTBE (ug/L)	MTBE	7.8	< 0.13	< 0.13	220	200	230	180	150	170	< 0.13	9.8	< 0.13	< 0.13	0.36 J	< 0.13	0.47 J

Table 4-2
2017 MNA Groundwater Analysis Results - BTEX, MTBE, TEAP
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		MW-118				L-2		L-8		L-27				L-34			
		1/19/17	4/26/17	7/26/17	10/25/17	4/26/17	10/25/17	4/27/17	10/26/17	1/19/17	4/26/17	7/26/17	10/26/17	1/19/17	4/26/17	7/26/17	10/26/17
TEAP (mg/L)	Nitrate Nitrogen	---	---	---	< 0.016	---	< 0.016	---	< 0.016	---	---	---	< 0.016	---	---	---	0.18
	Nitrite Nitrogen	---	---	---	< 0.019	---	< 0.019	---	< 0.019	---	---	---	< 0.019	---	---	---	< 0.019
	Dissolved Oxygen	---	---	---	< 1.0 H	---	< 1.0 H	---	< 1.0 H	---	---	---	< 1.0 H	---	---	---	2.2 H
	Sulfate (turbidimetric)	---	---	---	0.79	---	< 0.33	---	1.38	---	---	---	10.8	---	---	---	4.48
	Ferrous Iron	---	---	---	5.6 J	---	4.5 J	---	0.10 U	---	---	---	1.5 J	---	---	---	0.0087 UJ
	CO2 by Headspace 8015C/D	---	---	---	79	---	110	---	45	---	---	---	50	---	---	---	49
	Methane	---	---	---	16	---	1.5	---	1.9	---	---	---	0.43	---	---	---	0.004 J
BTEX (ug/L)	Benzene	0.91 J	0.88 J	0.95 J	0.84 J	< 0.09	< 0.09	7.7	19	< 0.09	< 0.09	0.21 J	0.51 J	0.18 J	< 0.09	< 0.09	< 0.09
	Toluene	0.77 J	0.83 J	0.93 J	0.79 J	< 0.25	< 0.25	< 0.25	0.34 J	< 0.25	< 0.25	< 0.25	0.59 J	3.0	< 0.25	< 0.25	< 0.25
	Ethylbenzene	< 0.30	0.32 J	0.32 J	0.32 J	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1.9	< 0.30	< 0.30	< 0.30
	Total xylenes	1.0 J	0.67 J	0.67 J	0.68 J	< 0.28	< 0.28	< 0.28	0.48 J	< 0.28	< 0.28	< 0.28	0.79 J	13	< 0.28	< 0.28	< 0.28
	Total BTEX	2.68	2.7	2.87	2.63	ND	ND	7.7	19.82	ND	ND	0.21	1.89	18.08	ND	ND	ND
MTBE (ug/L)	MTBE	4.3	3.4	2.1	2.3	0.39 J	1.1	0.20 J	< 0.13	0.52 J	2.4	14	34	< 0.13	< 0.13	< 0.13	1.0 U

Table 4-2
2017 MNA Groundwater Analysis Results - BTEX, MTBE, TEAP
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		N-42				N-43	N-45		RW-1A				RFI-1	RFI-2		RFI-4	
		1/17/17	4/27/17	7/26/17	10/26/17	10/26/17	4/26/17	7/26/17	1/20/17	4/25/17	7/27/17	10/26/17	10/27/17	10/26/17	10/26/17[(1)]	4/28/17	10/26/17
TEAP (mg/L)	Nitrate Nitrogen	---	---	---	< 0.016	< 0.016	---	---	---	---	---	< 0.016	< 0.016	6.43 J	6.47 J	---	< 0.016
	Nitrite Nitrogen	---	---	---	< 0.019	< 0.019	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	---	< 0.019
	Dissolved Oxygen	---	---	---	< 1.0 H	< 1.0 H	---	---	---	---	---	< 1.0 H	1.5 H	4.2 H	4.3 H	---	< 1.0 H
	Sulfate (turbidimetric)	---	---	---	1.39	1.33	---	---	---	---	---	< 0.33	14.0 J	31.1 J	30.8 J	---	< 0.33
	Ferrous Iron	---	---	---	0.10 U	0.13 R	---	---	---	---	---	22.3 J	0.0087 UJ	0.11 R	0.19 R	---	0.12 R
	CO2 by Headspace 8015C/D	---	---	---	45	53	---	---	---	---	---	84	120	96	93	---	150
	Methane	---	---	---	9.5	13	---	---	---	---	---	26	0.06	< 0.0017	< 0.0017	---	9.8
BTEX (ug/L)	Benzene	< 0.09	0.10 J	< 0.09	1.5	< 0.09	< 0.09	< 0.09	27	41	1,700	2,100	1.0 U	< 0.09	< 0.09	10	14
	Toluene	< 0.25	< 0.25	< 0.25	0.27 J	< 0.25	< 0.25	< 0.25	0.37 J	1.7	1,100	220	1.0 U	< 0.25	< 0.25	100	120
	Ethylbenzene	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1.4	380	440	1.0 U	< 0.30	< 0.30	430	480
	Total xylenes	< 0.28	< 0.28	< 0.28	1.1 J	< 0.28	< 0.28	< 0.28	< 0.28	0.61 J	960	640	2.0 U	< 0.28	< 0.28	740	1400
	Total BTEX	ND	0.10	ND	2.87	ND	ND	ND	27.37	44.71	4,140	3,400	ND	ND	ND	1280	2014
MTBE (ug/L)	MTBE	0.50 J	0.39 J	< 0.13	15	6.2	< 0.13	< 0.13	0.75 J	4.2	7.7	< 0.65	6.2 J	< 0.13	1.0 U	0.40 J	< 0.65

Table 4-2
2017 MNA Groundwater Analysis Results - BTEX, MTBE, TEAP
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		RFI-6		RFI-7		RFI-8R		RFI-9	RFI-11	OW/MW-3	MH-1R
		4/27/17	10/27/17	4/28/17	7/26/17	4/25/17	10/25/17	10/25/17	10/26/17	10/25/17	10/26/17
TEAP (mg/L)	Nitrate Nitrogen	---	< 0.016	---	---	---	0.73 J	< 0.016	< 0.016	< 0.016	< 0.016
	Nitrite Nitrogen	---	< 0.019	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019
	Dissolved Oxygen	---	< 1.0 H	---	---	---	< 1.0 H	1.1 H	1.1 H	1.1 H	< 1.0 H
	Sulfate (turbidimetric)	---	1.01	---	---	---	14.9 J	6.74	28.1	0.86 J	17.4
	Ferrous Iron	---	0.0087 UJ	---	---	---	0.0087 UJ	0.0087 UJ	0.16 R	0.18 J	0.10 U
	CO2 by Headspace 8015C/D	---	120	---	---	---	38	5.0	100	51	120
	Methane	---	5.1	---	---	---	4.6	3.0	0.11	0.37	0.22
BTEX (ug/L)	Benzene	140	150	5.7	4.3	1.5	1.4	1.1	< 0.09	< 0.09	< 0.09
	Toluene	2.0	24	3.6	2.8	0.45 J	0.30 J	< 0.25	< 0.25	< 0.25	< 0.25
	Ethylbenzene	0.79 J	44	< 0.30	< 0.30	0.76 J	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
	Total xylenes	4.2	26	1.1 J	1.1 J	< 0.28	0.30 J	< 0.28	< 0.28	< 0.28	< 0.28
	Total BTEX	146.99	244	10.4	8.2	2.71	2.0	1.1	ND	ND	ND
MTBE (ug/L)	MTBE	3.9	5.9	< 0.13	< 0.13	0.79 J	1.6	0.80 J	27	3.2	25

Table 4-2
Summary of 2017 MNA Monitoring Analytical Results
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Notes

Bold results indicate constituent detected above laboratory reporting limit.

Definitions

BTEX = Benzene, Toluene, Ethylbenzene, and total Xylenes
mg/L = Milligrams per liter
ug/L = Micrograms per liter
MNA = Facility-wide Monitored Natural Attenuation and hotspot/perimeter monitoring program
--- = Not Analyzed. Unless otherwise noted, this sample was not scheduled to be analyzed for this parameter during the sampling event performed on this date.
ND = Not Detected (total BTEX)
TEAP = Terminal electron acceptor/product

Data Qualifiers

"<" = Indicates that this parameter was not detected at a concentration equal to above the laboratory detection limit indicated.
J = The associated numerical value is an estimated quantity (e.g., below laboratory reporting limit or as qualified by data validation).
U = Result qualified as non-detect based on data validation (e.g., compound was detected in a blank sample).
R = Result was rejected, based on data validation.

Notes
(1) Duplicate collected at indicated location on indicated date.

Table 4-3
Summary of Mann-Kendall Statistical Test Results
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE
I-3	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Stable
I-5	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Prob. Decreasing
I-6	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
ICM-1	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
ICM-6	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Stable
ICM-7	Decreasing	Prob. Decreasing	No Trend	No Trend	Decreasing	Prob. Increasing
ICM-9	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
ICM-10	Decreasing	No Trend	Decreasing	No Trend	Decreasing	Decreasing
KM-GP5	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
KM-GP13	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
L-8	No Trend	Decreasing	Decreasing	Decreasing	No Trend	No Trend
L-27	No Trend	No Trend	Prob. Increasing	No Trend	No Trend	Stable
MW-103	Decreasing	No Trend	No Trend	No Trend	No Trend	Decreasing
MW-111	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
MW-113	Increasing	Decreasing	Increasing	No Trend	Increasing	Decreasing
MW-116	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
MW-117	No Trend	No Trend	No Trend	No Trend	No Trend	No Trend
MW-118	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
N-42	No Trend	No Trend	Increasing	No Trend	No Trend	No Trend
RFI-4	Decreasing	No Trend	Prob. Decreasing	No Trend	No Trend	No Trend
RFI-6	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
RFI-8R	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
RFI-9	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
RW-1A	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	No Trend

Notes:

(1) Well RFI-8 was destroyed during hot-spot excavation activities in July 2003, therefore post-remedial groundwater sampling in this area has been performed from replacement well RFI-8R. Statistical evaluation of contaminant concentrations in this area is thus presented from replacement well RFI-8R only.

(2) The data used for calculations of this stastic is comprised of the forty (40) most recent sampling events, per well, between December 1995 - December 2016.

Table 4-4
Summary of First Order Decay Rate Constants and Half-Lives
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well ID	Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX	
	Rate Constant ($year^{-1}$)	Half-Life (years)	Rate Constant ($year^{-1}$)	Half-Life (years)	Rate Constant ($year^{-1}$)	Half-Life (years)	Rate Constant ($year^{-1}$)	Half-Life (years)	Rate Constant ($year^{-1}$)	Half-Life (years)
I-3	0.18	3.8	0.11	6.5	0.20	3.5	0.17	4.1	0.17	4.1
I-5	0.33	2.1	0.18	3.8	0.29	2.4	0.33	2.1	0.34	2.0
I-6	0.20	3.5	0.31	2.2	0.09	7.5	0.14	4.9	0.13	5.3
ICM-1	0.27	2.5	0.24	2.8	0.20	3.5	0.34	2.0	0.31	2.2
ICM-6	0.20	3.4	0.20	3.5	0.07	10.0	0.17	4.2	0.16	4.4
ICM-7	0.21	3.3	0.10	7.0	0.05	13.4	0.08	8.8	0.14	4.8
ICM-9	0.31	2.2	0.17	4.2	0.13	5.3	0.08	8.8	0.25	2.8
ICM-10	0.12	5.6	0.02	41.1	0.09	7.6	0.03	23.8	0.09	7.5
KM-GP5	0.04	15.8	0.21	3.2	0.22	3.1	0.35	2.0	0.11	6.2
KM-GP13	0.21	3.3	0.33	2.1	0.15	4.7	0.18	3.8	0.24	2.9
L-8	0.07	10.5	0.10	6.9	0.21	3.4	0.13	5.5	0.09	7.9
L-27	0.21	3.3	0.04	19.5	0.14	5.1	0.13	5.1	0.17	4.0
MW-103	0.16	4.3	0.05	14.1	0.10	7.0	0.10	7.0	0.10	7.1
MW-111	0.19	3.6	0.31	2.2	0.35	2.0	0.61	1.1	0.36	1.9
MW-113	-0.02	NA	0.06	11.9	-0.13	NA	0.04	17.4	-0.04	NA
MW-116	0.30	2.3	0.29	2.4	0.59	1.2	0.60	1.2	0.37	1.9
MW-117	0.41	1.7	0.19	3.7	0.35	2.0	0.31	2.3	0.36	1.9
MW-118	0.29	2.4	0.16	4.3	0.21	3.3	0.18	3.9	0.22	3.1
N-42	0.24	2.9	0.05	14.2	-0.05	NA	0.04	15.5	0.19	3.6
RFI-4	0.10	6.6	0.06	12.4	0.08	8.4	0.03	25.7	0.05	15.1
RFI-6	0.16	4.3	0.28	2.4	0.33	2.1	0.32	2.1	0.24	2.9
RFI-8R[(1)]	0.23	3.0	0.20	3.5	0.36	1.9	0.37	1.9	0.32	2.2
RFI-9	0.24	2.9	0.10	6.8	0.21	3.2	0.25	2.8	0.28	2.4
RW-1A	0.16	4.4	0.29	2.4	0.32	2.2	0.35	2.0	0.22	3.2
Average	0.20	4.2	0.17	7.6	0.19	4.7	0.22	6.6	0.20	4.3

Notes:

(1) Well RFI-8 was destroyed during hot-spot excavation activities in July 2003, therefore post-remedial groundwater sampling in this area has been performed from replacement well RFI-8R. Natural attenuation rates in this area were therefore estimated from replacement well RFI-8R only.

NA = Not Applicable

Table 4-5
2017 Perimeter Monitoring Well Groundwater Results Compared to GCOs - BTEX and MTBE
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Perimter Monitoring Well [(1)]	Date	BTEX (ug/L)				MTBE (ug/L)
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	
	GCOs:	6,700	4,300	410	1,700	2,100,000
I-3	10/27/2017	<0.09	<0.25	<0.30	<0.28	130
ICM-1	1/19/17	0.98 J	0.39 J	<0.30	0.35 J	2.3
	4/28/17	0.92 J	0.39 J	<0.30	0.39 J	3.0
	7/26/17	0.48 J	0.51 J	<0.30	0.46 J	1.9
	10/25/2017	0.39 J	0.36 J	<0.30	0.41 J	2.1
ICM-10	10/25/2017	2.2	1.1	0.94 J	3.4	4.5
ICM-3	10/25/2017	<0.09	<0.25	<0.30	<0.28	<0.13
ICM-5	10/25/2017	0.17 J	<0.25	<0.30	<0.28	14
ICM-7	10/25/2017	2.9	<0.25	2.0	7.6	<0.13
ICM-9	4/27/17	2.0	1.9	1.9	4.3	0.75 J
	10/24/2017	1.5	1.2	0.75 J	3.7	0.75 J
L-2	4/26/17	<0.09	<0.25	<0.30	<0.28	0.39 J
	10/25/2017	<0.09	<0.25	<0.30	<0.28	1.1
L-8	4/27/17	7.7	<0.25	<0.30	<0.28	0.20 J
	10/26/2017	19	0.34 J	<0.30	0.48 J	<0.13
MH-1R	10/26/2017	<0.09	<0.25	<0.30	<0.28	25
MW-117	1/19/17	<0.09	<0.25	<0.30	<0.28	<0.13
	4/26/17	<0.09	<0.25	<0.30	<0.28	0.36 J
	7/26/17	<0.09	<0.25	<0.30	<0.28	<0.13
	10/25/2017	<0.09	<0.25	<0.30	<0.28	0.47 J
MW-118	1/19/17	0.91 J	0.77 J	<0.30	1.0 J	4.3
	4/26/17	0.88 J	0.83 J	0.32 J	0.67 J	3.4
	7/26/17	0.95 J	0.93 J	0.32 J	0.67 J	2.1
	10/25/2017	0.84 J	0.79 J	0.32 J	0.68 J	2.3
N-42	1/17/17	<0.09	<0.25	<0.30	<0.28	0.50 J
	4/27/17	0.10 J	<0.25	<0.30	<0.28	0.39 J
	7/26/17	<0.09	<0.25	<0.30	<0.28	<0.13
	10/26/2017	1.5	0.27 J	<0.30	1.1 J	15
RFI-8R	4/25/17	1.5	0.45 J	0.76 J	<0.28	0.79 J
	10/25/2017	1.4	0.30 J	<0.30	0.30 J	1.6
RFI-9	10/25/2017	1.1	<0.25	<0.30	<0.28	0.80 J
RFI-11	10/26/2017	<0.09	<0.25	<0.30	<0.28	27

Bold results indicate constituent detected above laboratory reporting limit.

Shaded results indicate detected constituent exceeded applicable GCOs.

Notes

(1) Perimter monitoring wells, as defined in the Corrective Measures Study (CMS) Report, include I-3, ICM-1, ICM-3, ICM-5, ICM-7, ICM-9, ICM-10, L-2, L-8, MW-117, MW-118, MH-1, N-42, RFI-8R, RFI-9, and RFI-11.

Definitions

BTEX = Benzene, Toluene, Ethylbenzene, and total Xylenes
MTBE = Methyl tert-butyl ether
MNA = Facility-wide Monitored Natural Attenuation and hotspot/perimeter monitoring program
GCOs = Groundwater Cleanup Objectives
ug/L = Micrograms per liter
"---" = Not sampled for this parameter.

Data Qualifiers

"<" = Indicates that this parameter was not detected at a concentration equal to above the laboratory detection limit indicated.
J = The associated numerical value is an estimated quantity.
U = Result qualified as non-detect based on data validation (e.g., compound was detected in a blank sample).

Table 4-6
TEA/TEAP Averages and Assimilative Capacity
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well Identifier	Date	TEA/TEAP Parameters (mg/L)			
		Sulfate	Ferrous Iron	Dissolved Oxygen	Methane
Background Wells					
RFI-1	Jul-00	31	0.0148 J	1.75	< 0.07
	Jan-01	12.4	0.082 J	9.82	< 0.002
	Jul-01	22	0.16	0.00	0.003 J
	Jan-02	16.3	< 0.009	3.22	< 0.002
	Jul-02	27.2	< 0.006	3.18	0.0088
	Jan-03	15.2	0.0078 J	5.99	< 0.002
	Jul-03	20	0.04 J	2.65	0.0045 J
	Jan-04	18.8	0.022 J	1.42	0.012
	Jul-04	20	0.021 J	0.86	0.0076
	Jul-05	16.2	0.016 J	1.57	< 0.002
	Jul-06	9.3	< 0.008	1.12	< 0.0034 UJ
	Jul-07	8.5	0.41	0.3 J	< 0.0024 UJ
	Jul-08	< 10	4.3	0.4	0.091
	Jul-09	7.4	0.36 J	0.56	0.084 J
	Jul-10	8.9	0.46	1.47	0.022 J
	Jul-11	8.5	2.8	0.09	< 0.017 UJ
	Oct-12	< 2.5	0.14 J	0.88	0.16
	Nov-13	15.5	2.7	1.12	0.42
	Oct-14	< 2.5	0.2	4.74	0.84
	Oct-15	11.3	1.1	1.1	0.09 J
	Oct-16	8.45	0.12 J	1.3	0.15
	Oct-17	14 J	0.0087 UJ	1.5 H	0.06
	Average	14	0.590	2.0	0.093
RFI-2	Jul-00	85	0.0207 J	3.84	< 0.07
	Jan-01	57	0.0561 J	4.33	0.0056
	Jul-01	53	< 0.009	4.5	< 0.002
	Jan-02	57	< 0.009	5.73	0.0039 J
	Jul-02	67	< 0.006	4.91	< 0.002
	Jan-03	58	< 0.006	4.38	< 0.002
	Jul-03	43.9	< 0.008	6.77	< 0.002
	Jan-04	42.6	< 0.008	5.01	< 0.002
	Jul-04	41.3	< 0.008	5.34	< 0.002
	Jul-05	38.1	< 0.008	4.06	< 0.002
	Jul-06	38.2	< 0.008	---	< 0.0025 UJ
	Jul-07	34.8	< 0.008	5.76	< 0.002 J
	Jul-08	36.8	< 0.008	5.02	< 0.002
	Jul-09	36.6	0.013	5.77	< 0.005
	Jul-10	34..4	< 0.010	5.02	< 0.010
	Jul-11	34.6	< 0.017 UJ	6.13	< 0.005
	Oct-12	9.8	< 0.021 UJ	4.42	0.073
	Nov-13	19.7	< 0.010	0.36 J	< 0.003
	Oct-14	4.6 J	0.021 J	6.21	< 0.003
	Oct-15	14.3	0.10 J	3.7	< 0.005
	Oct-16	20.2	< 0.05 J	3.7	< 0.005
	Oct-17	31.1 J	0.11 R	4.2 H	< 0.002
	Average	39	0.023	4.7	0.010

Table 4-6
TEA/TEAP Averages and Assimilative Capacity
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well Identifier	Date	TEA/TEAP Parameters (mg/L)			
		Sulfate	Ferrous Iron	Dissolved Oxygen	Methane
Background Wells (continued)					
MW-112	Jul-04	32	< 0.008	2.6	< 0.002
	Jul-05	22.6	< 0.008	1.37	< 0.002
	Jul-06	24.1	< 0.008	1.83	< 0.0028 UJ
	Jul-07	19.4	< 0.008	1.61	< 0.002 J
	Jul-08	19.4	< 0.008	1.7	< 0.002
	Jul-09	19.8	< 0.01	2.14	< 0.005
	Jul-10	17.8	0.025 J	1.44	< 0.010
	Jul-11	24.6	< 0.021 UJ	1.54	< 0.0073 UJ
	Oct-12	47.7	< 0.038 UJ	1.26	< 0.005
	Oct-13	29.8	< 0.01	1.14	< 0.003
	Oct-14	25.6	0.044 J	1.65	< 0.003
	Oct-15	23.2	0.079 J	1.6	< 0.005
	Oct-16	23.2	< 0.048 J	1.2	< 0.005
	Oct-17	17.4	< 0.009 J	1.6 H	< 0.002
	Average	25	0.023	1.6	0.004
MW-114	Jul-04	31.5 J	< 0.008 J	3.85	< 0.002
	Jul-05	29.2	0.025 J	4.72	< 0.002
	Jul-06	32.7	< 0.008	4.51	< 0.002 J
	Jul-07	26.6	< 0.008	4.08	< 0.002 J
	Jul-08	26.2	< 0.008	5.26	< 0.002
	Jul-09	32.6	0.032	5.72	< 0.005
	Jul-10	23.9	< 0.01	4.60	< 0.005
	Jul-11	26.3	< 0.04 UJ	5.32	< 0.007 UJ
	Oct-12	23.4	< 0.01	4.99	< 0.005
	Oct-13	20.6	0.11 U	5.57	< 0.003
	Oct-14	20.1	0.13	5.29	< 0.003
	Oct-15	20	0.10 J	< 1	< 0.005
	Oct-16	17.8	< 0.048 J	6.2	< 0.005
	Oct-17	18.1	0.009 J	< 1.0 H	0.005 J
	Average	25	0.039	4.4	0.004
Background Average		26	0.169	3.2	0.028
Impacted Wells					
RFI-4	Jul-00	< 3	62	4.21	5.02
	Jan-01	< 15	55	0.08	6.1
	Jul-01	3.7 J	49	0	7.4
	Jan-02	< 3	64	0.25	7.9
	Jul-02	< 1.5	58	2.92	7.8
	Jan-03	< 1.5	24	0.64	5.1
	Jul-03	< 1.5	50.8	0.18	8.8
	Jan-04	< 1.5	20.6	0.08	5.9
	Jul-04	< 1.5	36	1.63	6.1
	Jul-05	< 3	54.8	< 0.09	5 J
	Jul-06	< 7.1 U	10.9	0.18 J	2.1 J
	Jul-07	< 5	18.3	2.39	5 J
	Jul-08	< 2.5	47.5	0.2	11
	Jul-09	< 2.5	56.8	< 0.09	11
	Jul-10	< 5	45.2	< 0.09	9.4
	Jul-11	< 5	47.2	0.93	5.1
	Oct-12	< 2.5	30.1	< 0.09	11
	Oct-13	< 5	58.6	< 0.09	14

Table 4-6
TEA/TEAP Averages and Assimilative Capacity
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well Identifier	Date	TEA/TEAP Parameters (mg/L)			
		Sulfate	Ferrous Iron	Dissolved Oxygen	Methane
Impacted Wells (continued)					
RFI-4	Oct-14	< 5	46.3	0.75	13
	Oct-15	< 0.6	28.8	< 1.0	6.4
	Oct-16	2.23	0.48 J	< 1.0	12
	Oct-17	< 0.33	0.12 R	< 1.0 H	9.8
	Average	3.5	39.3	0.8	8.0
RFI-6	Jul-00	< 3	27.6	1.3	6.49
	Jan-01	< 6	22.3	1.28	7.2
	Jul-01	< 3	26	0.0	9.9
	Jan-02	< 1.5	26	0.1	9.9
	Jul-02	< 3	23.5	2.81	17
	Jan-03	3.2 J	15.3	0.11	3.3
	Jul-03	4.6 J	11.2	0.3	3
	Jan-04	< 3	14	0.11	7.1
	Jul-04	< 1.5	17.3	0.81	4.5
	Jul-05	< 1.5	16.4	< 0.09	6 J
	Jul-06	< 3.9 U	8.5	< 0.09	5.1 J
	Jul-08	< 2.5	9.7	< 0.09	8.9 J
	Jul-09	3.8	11.1	< 0.09	4.1
	Jul-10	< 5	10.8	< 0.09	8.5
	Jul-11	< 5	4.3	0.11	3.6
	Oct-12	< 2.5	12.1	< 0.09	12
	Oct-13	< 2.5	7.5	1.27	12
	Oct-14	< 2.5	7.9	0.54	7.6
	Oct-15	< 0.6	0.1 J	< 1.0	4.8 J
	Oct-16	0.6	< 0.048 J	< 1.0	10
	Oct-17	1.01	0.0087 UJ	< 1.0 H	5.1
	Average	2.9	12.9	0.6	7.4
RFI-8 / RFI-8R [(1)]	Jul-00	< 6	52	0.58	9.61
	Jan-01	< 6	74	0	9.9
	Jul-01	< 7.5	62	7.83	11
	Jan-02	< 3	52	0	15
	Jul-02	< 6	65	0	13
	Jan-03	< 1.5	91	0.07	18
	Jul-06	NA	NA	0.4	NA
	Jan-04	< 6	41.5	0.19	11
	Jul-04	< 3	33.3	0.46	8.1 J
	Jul-05	< 3	32.8	0.09	5.2 J
	Jul-06	< 3	33.5	0.1 J	6.5 J
	Jul-07	< 10	29.2	< 0.09	6.3 J
	Jul-08	< 5	27.8	< 0.09	7.2 J
	Jul-09	< 10	27.1	< 0.09	7.4
	Jul-10	< 5	25.2 J	0.7	4.7
	Jul-11	< 5	< 24.5 U	< 0.09	4.5
	Oct-12	5.9 J	< 17.4 U	< 0.09	6
	Oct-13	< 5	27.7	< 0.09	5.3
	Oct-14	13.2	13.7	0.93	5.1
	Oct-15	14.8 J	0.57	2.0	1.6 J
	Oct-16	9.09	0.16 J	< 1.0	3.3 J
	Oct-17	14.9 J	0.0087 UJ	< 1.0 H	4.6
	Average	6.8	34.8	0.7	7.8
RW-1A	Jan-03	< 1.5	6.3	0.25	4.2
	Jul-03	< 1.5	24.5	3.19	20
	Feb-04	< 3	33.9	0.24	24

Table 4-6
TEA/TEAP Averages and Assimilative Capacity
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well Identifier	Date	TEA/TEAP Parameters (mg/L)			
		Sulfate	Ferrous Iron	Dissolved Oxygen	Methane
Impacted Wells (continued)					
RW-1A	Jul-04	< 1.5	36	0.86	20 J
	Jul-05	< 6	44.1	< 0.09	21 J
	Jul-06	< 6	34.1	< 0.09	17 J
	Jul-07	< 10	32.4	2.62	16 J
	Jul-08	< 5	37.2	---	28
	Jul-09	< 10	34.4	< 0.09	8.6
	Jul-10	< 10	40.1	< 0.09	26
	Jul-11	< 2.5	31.2	0.1	26
	Oct-12	< 5	35.2	< 0.09	28
	Nov-13	< 2.5	33.5 U	< 0.09	30
	Oct-14	< 5	28.1	< 0.4	27
	Oct-15	0.6	2.2	< 1.0	14
	Oct-16	0.64	0.21 J	< 1.0	14
	Oct-17	< 0.33	22.3 J	< 1.0 H	26
	Average	4.2	27.6	0.7	20.6
I-6	Jul-00	< 6	38.3	2.32	4.62
	Jan-01	LNAPL	LNAPL	LNAPL	LNAPL
	Jul-01	LNAPL	LNAPL	LNAPL	LNAPL
	Jan-02	< 1.5	47	0.51	2.8
	Jul-02	< 1.5	46	3.02	7.9
	Jan-03	< 6	45	0.16	6
	Jul-03	< 3	53.1	0.45	5
	Jan-04	< 6	45.2	0.2	5.7
	Jul-04	< 3	36.7	1.24	7
	Jul-05	< 1.5	32.6	< 0.09	5.3 J
	Jul-06	< 3	30.3	---	5.6 J
	Jul-07	< 10	35.4	< 0.09	6.5 J
	Jul-08	< 5	33.8	< 0.09	9.1
	Jul-09	< 2.5	35.7	< 0.09	5.3
	Jul-10	< 10	39.6	< 0.09	9.1
	Jul-11	< 2.5	32.2	< 0.09	7.7
	Oct-12	< 2.5	30.6	< 0.09	13
	Nov-13	< 2.5	33.6	< 0.09	15
	Oct-14	< 2.5	32.2	< 0.4	13
	Oct-15	< 0.6	1.4	< 1.0	7.1
	Oct-16	1.08	5.1 J	< 1.0	10
	Oct-17	1.22	12.5 J	< 1.0 H	10
	Average	3.6	33.3	0.6	7.8
ICM-6	Jul-00	< 6	21	0.66	10.83
	Jan-01	< 3	14.4	0	6.9
	Jul-01	< 3	18	0.77	14
	Jan-02	< 3	15.6	4.49	13
	Jul-02	< 3	29	0.32	18
	Jan-03	< 3	21.7	0.17	16
	Jul-03	< 1.5	25.2	3.6	16
	Jan-04	< 1.5	14.9	0.19	15

Table 4-6
TEA/TEAP Averages and Assimilative Capacity
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well Identifier	Date	TEA/TEAP Parameters (mg/L)			
		Sulfate	Ferrous Iron	Dissolved Oxygen	Methane
Impacted Wells (continued)					
ICM-6	Jul-04	< 3	25.4	0.78	19
	Jul-05	< 1.5	22.3	< 0.09	14 J
	Jul-06	< 6	19	< 0.09	14 J
	Jul-07	< 10	22.5	---	12 J
	Jul-08	< 5	27.1	< 0.09	17 J
	Jul-09	< 5	24.4	< 0.09	---
	Jul-10	< 5	29	0.09 J	18
	Jul-11	< 5	28.3	0.11	21
	Oct-12	< 2.5	7.4	< 0.09	15
	Oct-13	< 10	18.6	< 0.09	23
	Oct-14	< 5	25.5	< 0.4	24
	Oct-15	< 0.6	11.9	< 1.0	19
	Oct-16	0.56 J	< 0.048 J	< 1.0	13
	Oct-17	< 0.33	24.9 J	< 1.0 H	21
	Average	3.8	20.3	0.7	16.2
ICM-9	Jul-00	< 6	49	1.86	10.04
	Jan-01	< 6	56	1.09	17
	Jul-01	< 7.5	41	1.29	11
	Jan-02	< 6	43	0	15
	Jul-02	< 3	40	2.38	16
	Jan-03	< 3	41	0.13	25
	Jul-03	< 6	38.1	3.19	9.8
	Jan-04	< 6	38.7	0.4	16
	Jul-04	< 1.5	26.8	1.24	11
	Jul-05	< 3	47.3	< 0.09	14 J
	Jul-06	< 3	31.7	0.84	11 J
	Jul-07	< 10	54	< 0.09	17 J
	Jul-08	< 5	27.6	< 0.09	11 J
	Jul-09	< 2.5	65.4	0.69	6.2
	Jul-10	< 5	21.8	< 0.09	8.9
	Jul-11	< 5	22.2	< 0.09	8
	Oct-12	< 5	< 15.3 U	3.53	9
	Oct-13	< 2.5	11.4	< 0.09	8.4
	Oct-14	< 2.5	10.7	< 0.4	6.4
	Oct-15	1.39	0.21	< 1.0	7.5
	Oct-16	0.94	0.13 J	< 1.0	5.5
	Oct-17	0.88	0.27 J	< 1.0 H	6.7
	Average	4.2	31.0	0.9	11.4
MW-116	Jul-04	< 6 J	34.9 J	1.26	19
	Jul-05	< 3	46.6	< 0.009	19 J
	Jul-06	< 2.1 U	40.2	< 0.09	15 J
	Jul-07	< 12.5	45.9	< 0.09	2 J
	Jul-08	27.4	22.5	< 0.09	16 J
	Jul-09	22.6	20.1	< 0.09	6.4
	Jul-10	49.6	4.8	< 0.09	11
	Jul-11	129	0.29	0.2	4.7
	Oct-12	12.3	7.9	0.27 J	9.3
	Oct-13	15.5	7.7	< 0.09	11

Table 4-6
TEA/TEAP Averages and Assimilative Capacity
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Well Identifier	Date	TEA/TEAP Parameters (mg/L)			
		Sulfate	Ferrous Iron	Dissolved Oxygen	Methane
Impacted Wells (continued)					
	Oct-14	< 5	17.7	< 0.4	24
	Oct-15	0.73	0.1 J	< 1.0	8
	Oct-16	9.93	0.11 J	< 1.0	9.3
	Oct-17	0.97	0.14 R	< 1.0 H	14
	Average	21	17.8	0.4	12
Impacted Average		6.3	27.1	0.7	11.4
Difference Between Background and Impacted Wells					
Difference		19.4	-27.0	2.5	11.4
Assimilative Capacity					
Assimilative Capacity (mg/L)		4.2	-1.2	0.8	14.6

Total Assimilative Capacity	18.4 mg/L

Notes:

(1) RFI-8 was destroyed in July 2003 during excavtion activities in the area. Replacement well RFI-8R was installed in August 2003 and has been included in the on-going MNA program.

LNAPL = Light Non-Aqeuous Phase Liquid. This well was not sampled due to the presence of LNAPL.
mg/L = Milligrams per liter
NA = Not analyzed.
TEA/TEAP = Terminal electron acceptor / Terminal electron acceptor product
"<" = Indicates that this parameter was not detected at a concentration equal to above the laboratory detection limit indicated. The indicated laboratory detection limit was used in calculation of averages.
J = The associated numerical value is an estimated quantity.
U = Qualified as non-detect (e.g., compound present in blank)

Table 4-7
2012 Perimeter Monitoring Well Groundwater Results Compared to GCOs - PAHs
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		I-3				ICM-1		ICM-3		ICM-5	
		3/7/12		3/7/12[(1)]		3/7/12		3/7/12		3/7/12	
Constituent	GCOs	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Acenaphthene	1,000	<0.09	<0.1	0.1J	<0.1	13	3	0.3J	<0.09	5	3
Acenaphthylene	NA	<0.09	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.09	<0.09	<0.09
Anthracene	3,200	<0.09	<0.1	<0.1	<0.1	4J	<0.1	0.3J	0.1J	0.7	0.1J
Benzo(a)anthracene	4.9	<0.09	<0.1	<0.1	<0.1	<1	<0.1	0.2J	<0.09	<0.09	<0.09
Benzo(a)pyrene	2.4	<0.09	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.09	<0.09	<0.09
Benzo(b)fluoranthene	NA	<0.09	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.09	<0.09	<0.09
Benzo(ghi)perylene	NA	<0.09	<0.1	<0.1	<0.1	<1	<0.1	0.2J	<0.09	<0.09	<0.09
Benzo(k)fluoranthene	NA	<0.09	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.09	<0.09	<0.09
Chrysene	3,000	<0.09	<0.1	<0.1	<0.1	<1	<0.1	0.3J	<0.09	<0.09	<0.09
Dibenzo(a,h)anthracene	NA	<0.09	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.09	<0.09	<0.09
Fluoranthene	140	<0.09	<0.1	<0.1	<0.1	4J	<0.1	0.3J	<0.09	0.2J	<0.09
Fluorene	230	0.1J	<0.1	0.1J	<0.1	17	1	0.4J	<0.09	4	1
Indeno(1,2,3-cd)pyrene	NA	<0.09	<0.1	<0.1	<0.1	<1	<0.1	0.1J	<0.09	<0.09	<0.09
1-Methyl naphthalene	370	0.4J	<0.1	0.3J	0.1J	72	41	0.2J	0.2J	15	5
2-Methylnaphthalene	380	0.1J	<0.1	0.1J	<0.1	42	26	<0.1	<0.09	<0.09	<0.09
Naphthalene	1,400	0.2J	<0.1	0.2J	<0.1	<1	<0.1	0.1J	0.2J	<0.09	<0.09
Phenanthrene	140	0.2J	<0.1	0.2J	<0.1	16	<0.1	0.2J	<0.09	0.4J	<0.09
Pyrene	130	0.1J	<0.1	0.1J	<0.1	8	<0.1	0.6	<0.09	0.7	<0.09

Table 4-7
2012 Perimeter Monitoring Well Groundwater Results Compared to GCOs - PAHs
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Constituent	GCOs	ICM-7		ICM-9		ICM-10		L-2		L-8	
		3/8/12		3/8/12		3/8/12		3/8/12		3/8/12	
		Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Acenaphthene	1,000	0.1J	0.1J	5	3	8	7	1	2	<0.09	<0.09
Acenaphthylene	NA	<0.1	<0.1	1	0.5	<0.1	<0.1	0.2J	0.3J	<0.09	<0.09
Anthracene	3,200	<0.1	<0.1	1	<0.09	0.8	<0.1	<0.1	0.4J	<0.09	<0.09
Benzo(a)anthracene	4.9	<0.1	<0.1	3	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Benzo(a)pyrene	2.4	<0.1	<0.1	6	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Benzo(b)fluoranthene	NA	<0.1	<0.1	11	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Benzo(ghi)perylene	NA	<0.1	<0.1	7	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Benzo(k)fluoranthene	NA	<0.1	<0.1	5	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Chrysene	3,000	<0.1	<0.1	6	<0.09	0.1J	<0.1	<0.1	<0.09	<0.09	<0.09
Dibenzo(a,h)anthracene	NA	<0.1	<0.1	1	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Fluoranthene	140	<0.1	<0.1	10	<0.09	0.4J	<0.1	<0.1	<0.09	<0.09	<0.09
Fluorene	230	<0.1	<0.1	7	4	10	6	2	3	<0.09	<0.09
Indeno(1,2,3-cd)pyrene	NA	<0.1	<0.1	6	<0.09	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
1-Methyl naphthalene	370	0.8	5	150	110	74	68	21	23	0.3J	<0.09
2-Methylnaphthalene	380	<0.1	1	200	160	<0.1	<0.1	<0.1	<0.09	<0.09	<0.09
Naphthalene	1,400	2	6	5	7	<0.1	<0.1	<0.1	<0.09	0.1J	<0.09
Phenanthrene	140	<0.1	<0.1	4	<0.09	7	0.3J	<0.1	0.8	<0.09	<0.09
Pyrene	130	<0.1	<0.1	7	<0.09	0.5J	<0.1	<0.1	0.2J	<0.09	<0.09

Table 4-7
2012 Perimeter Monitoring Well Groundwater Results Compared to GCOs - PAHs
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

		MW-117		MW-118		N-42		RFI-8R		RFI-9		RFI-11	
		3/7/12		3/8/12		3/7/12		3/7/12		3/7/12		3/8/12	
Constituent	GCOs	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Total	Diss
Acenaphthene	1,000	2	0.7	3	1	0.7	0.2J	0.9	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	NA	<0.09	<0.09	0.5	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	3,200	0.6	<0.09	0.3J	<0.1	<0.1	<0.1	0.1J	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	4.9	0.2J	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	2.4	0.2J	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	NA	0.2J	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	NA	0.2J	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	NA	<0.09	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	3,000	0.3J	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	NA	<0.09	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	140	0.7	<0.09	0.2J	<0.1	<0.1	<0.1	0.1J	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	230	2	0.2J	4	0.4J	0.9	0.1J	0.4J	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	NA	0.1J	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
1-Methyl naphthalene	370	3	0.9	74	35	0.2J	<0.1	20	11	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	380	<0.09	<0.09	<0.09	<0.1	<0.1	<0.1	<0.09	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	1,400	<0.09	<0.09	<0.09	<0.1	<0.1	0.1J	<0.09	0.9	<0.1	<0.1	<0.1	<0.1
Phenanthrene	140	0.2J	<0.09	3	<0.1	0.1J	<0.1	0.2J	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	130	1	<0.09	0.7	<0.1	<0.1	<0.1	0.1J	<0.1	<0.1	<0.1	<0.1	<0.1

Table 4-7
2012 Perimeter Monitoring Well Groundwater Results Compared to GCOs - PAHs
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Notes
All results in micrograms per liter (ug/L) Bold results indicate constituent detected above laboratory reporting limit. Shaded results indicate constituent detected above GCO. Definitions PAH = Polycyclic Aromatic Hydrocarbon MNA = Facility-wide Monitored Natural Attenuation and hotspot/perimeter monitoring program GCOs = Groundwater Cleanup Objectives --- = Not Analyzed. Unless otherwise noted, this sample was not scheduled to be analyzed for this parameter during the sampling event performed on this date. Data Qualifiers "<" = Indicates that this parameter was not detected at a concentration equal to above the laboratory detection limit indicated. J = The associated numerical value is an estimated quantity (e.g., below laboratory reporting limit or as qualified by data validation). Notes (1) Duplicate collected at indicated location on indicated date.

Figures

Source:
2009 National Geographic Society US Topo Maps

Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

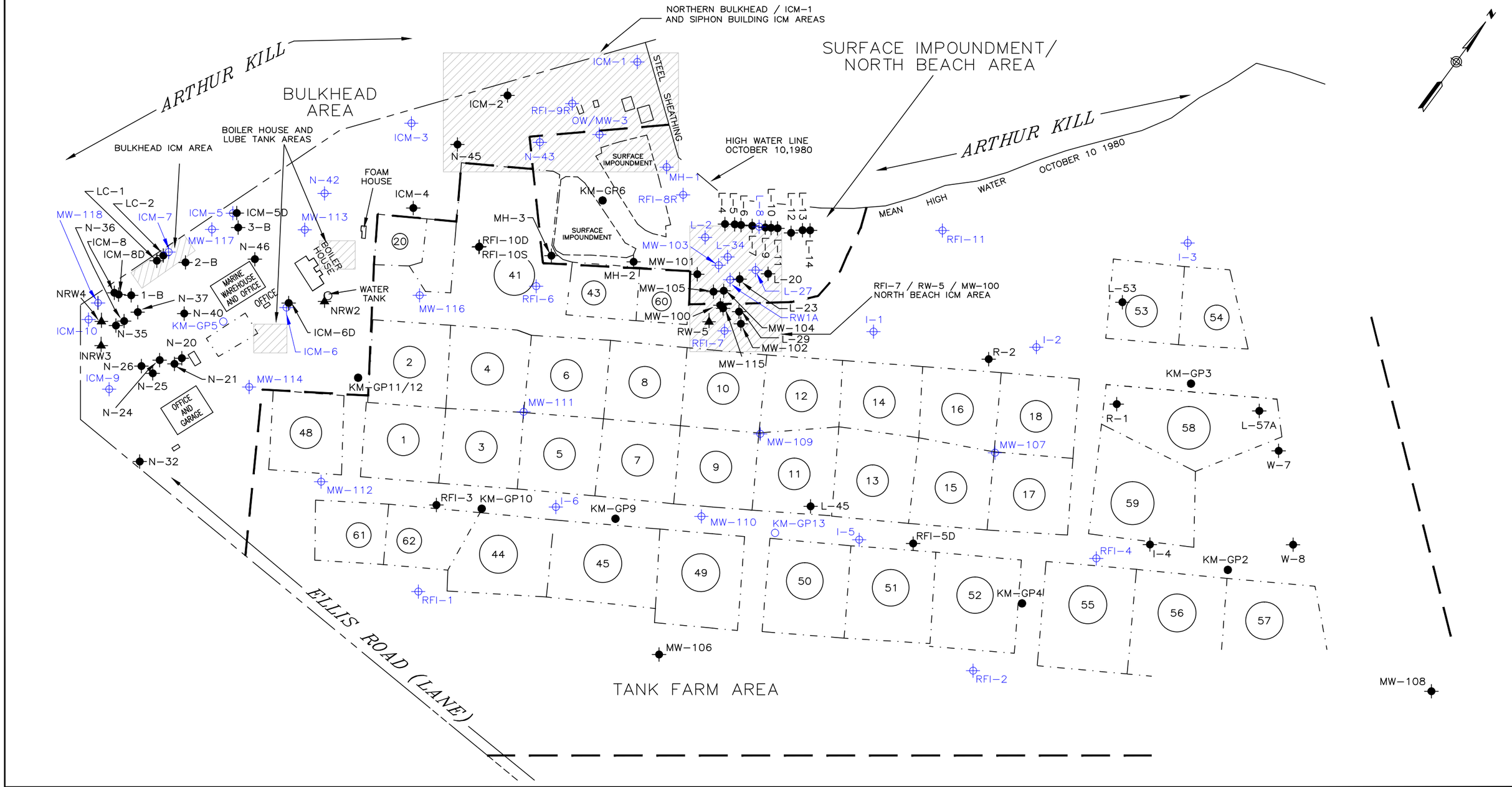
February 2018

N

Figure 1-1
Site Location Map
Annual Progress Report for 2017
Former Port Mobil Terminal
Staten Island, New York

KINDER MORGAN Louis Berger

0 1,000 2,000
Feet



LEGEND

- MNA PROGRAM WELL
- MNA PROGRAM GEOPROBE MICROWELL
- MONITORING WELL
- RECOVERY WELL
- GEOPROBE MICROWELL
- APPROXIMATE CENTERLINE OF DIKE
- APPROXIMATE TOP EDGE OF HOLDING POND

Note: Location of tanks compiled from aerial maps

NAD 1983 State Plane New York East Zone, US Foot

February 2018

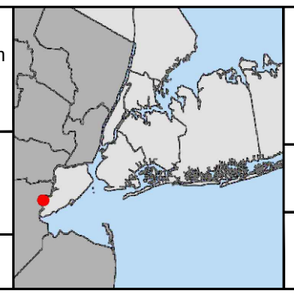
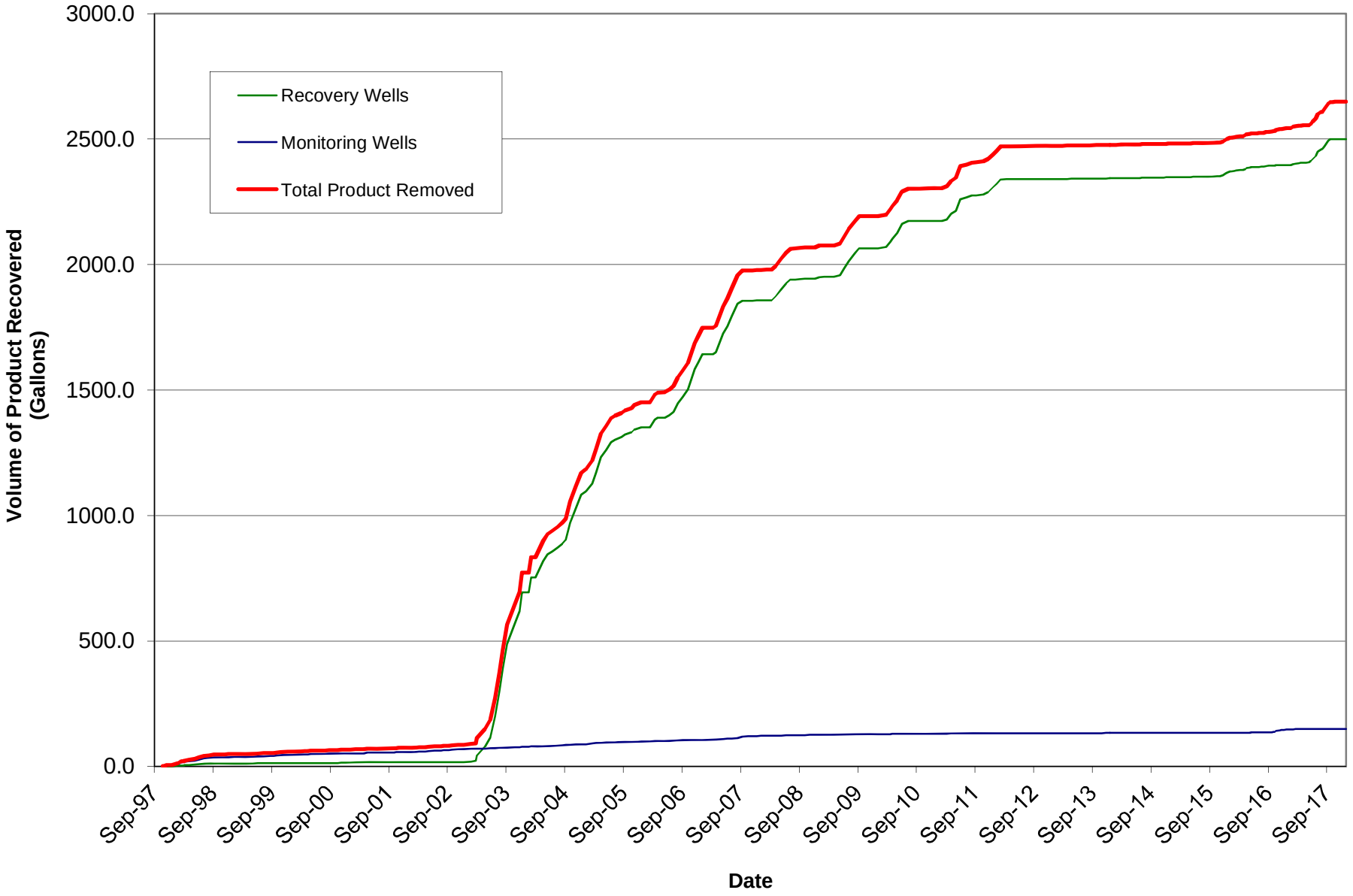


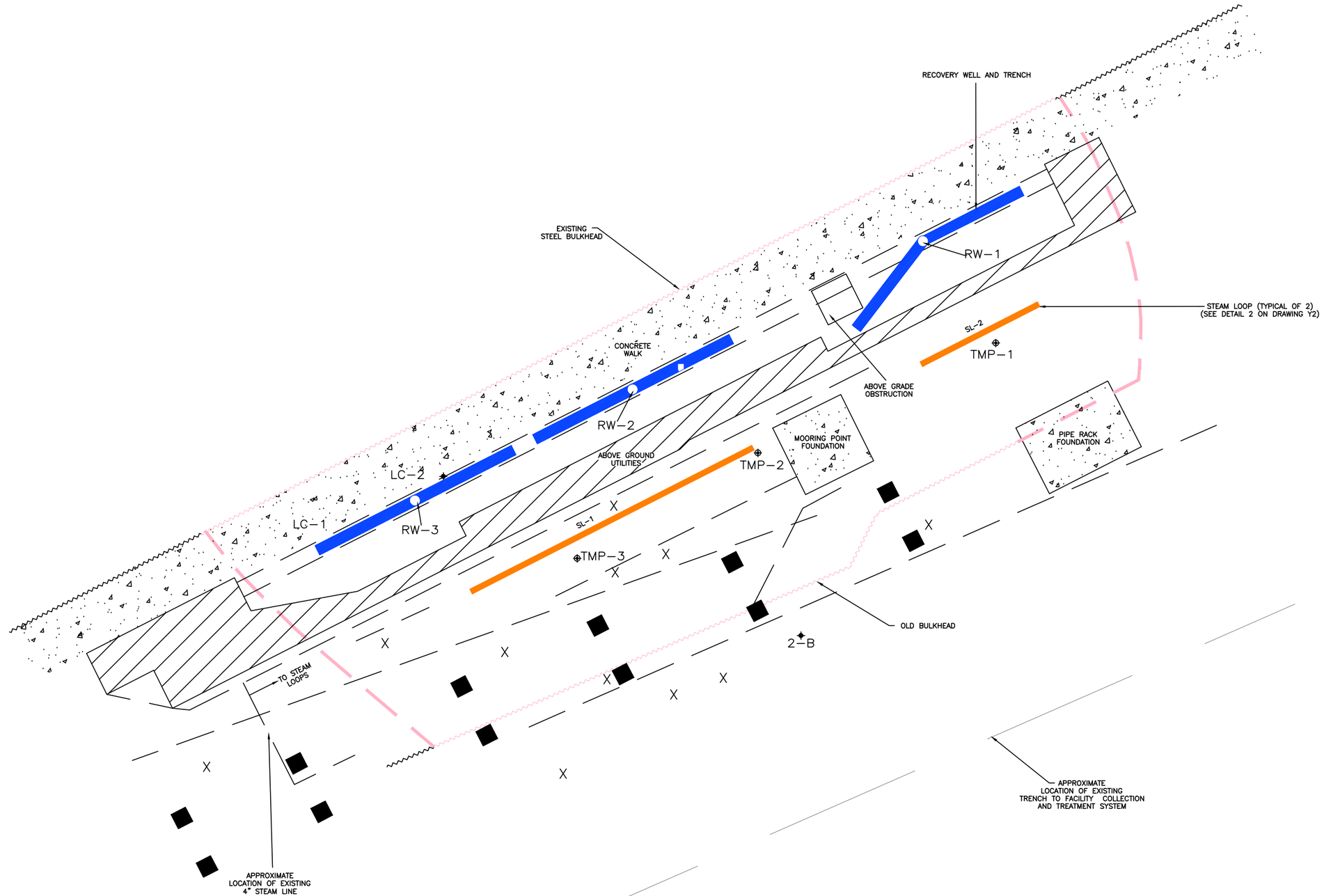
Figure 1-2
Site Plan
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 300 600 900 Feet

Figure 3-1
Cumulative Product Recovery
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY





LEGEND

- MONITORING WELL (ICM INVESTIGATION) EX.: LC–1
- TEMPORARY MONITORING POINT EX.: TMP–1
- X UNIDENTIFIED BURIED OBJECT
- CONCRETE SUPPORT FOR OVERHEAD UTILITIES
- POSSIBLE UTILITY EX.: TMP–1

NOTES:

1) THE RED LINES REPRESENT THE APPROXIMATE EXTENT OF THE LNAPL PLUME.
2) LOCATIONS ARE APPROXIMATE.
3) MAP SCALE IS APPROXIMATE.

Note: Map scale is approximate

NAD 1983 State Plane New York East Zone, US Foot

February 2018

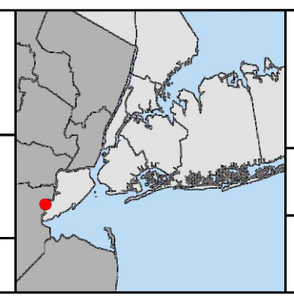
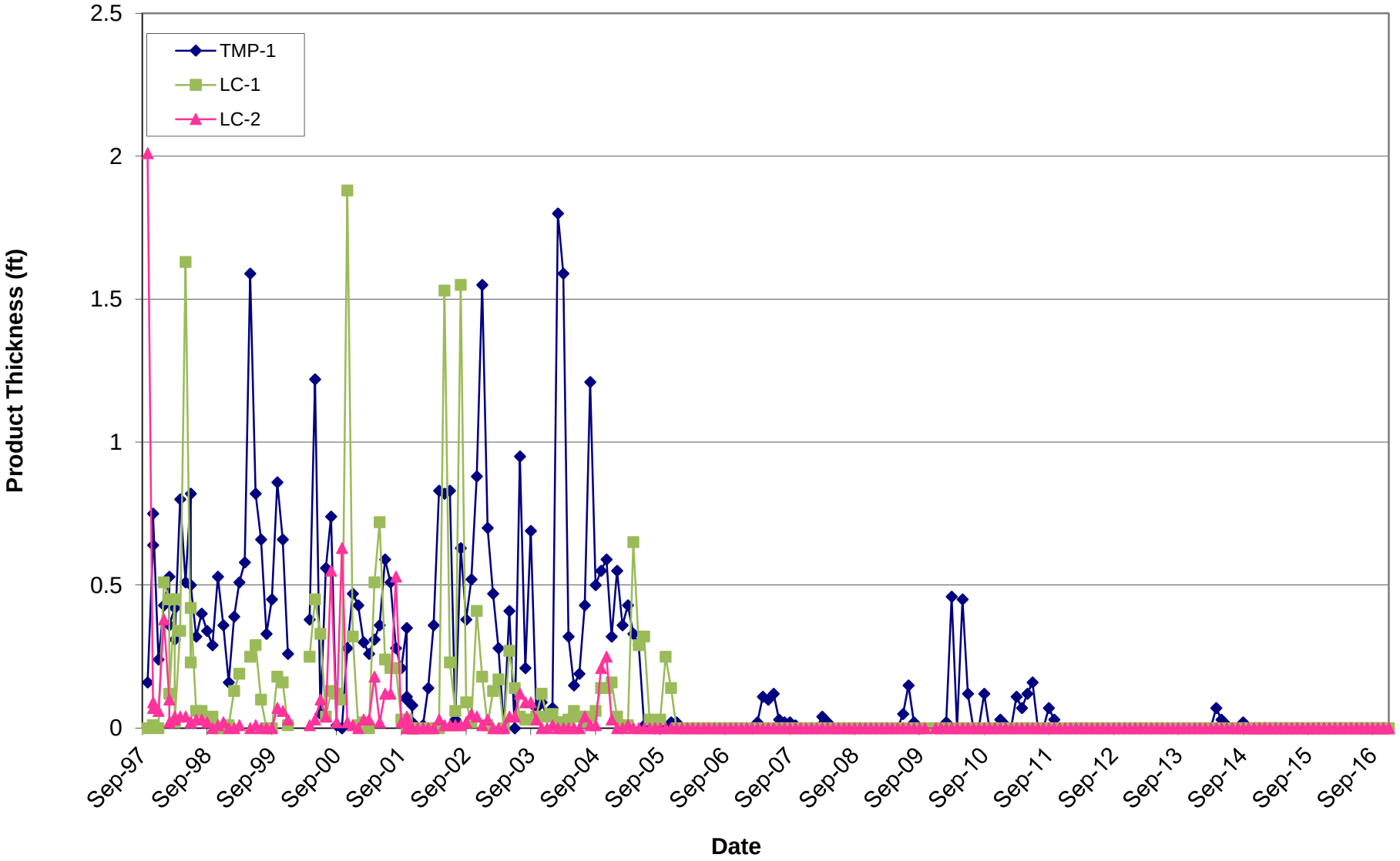


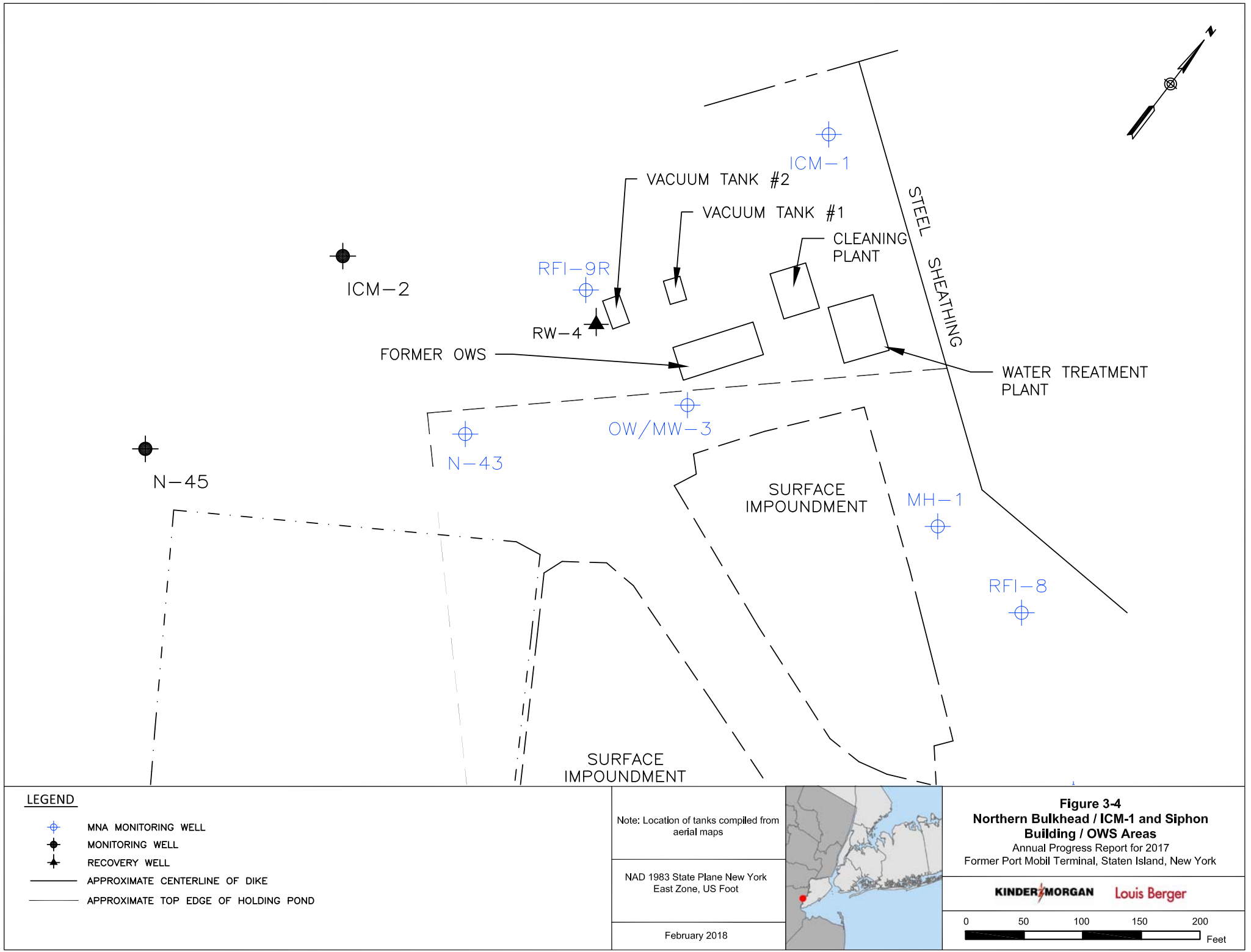
Figure 3-2
Bulkhead ICM Area
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

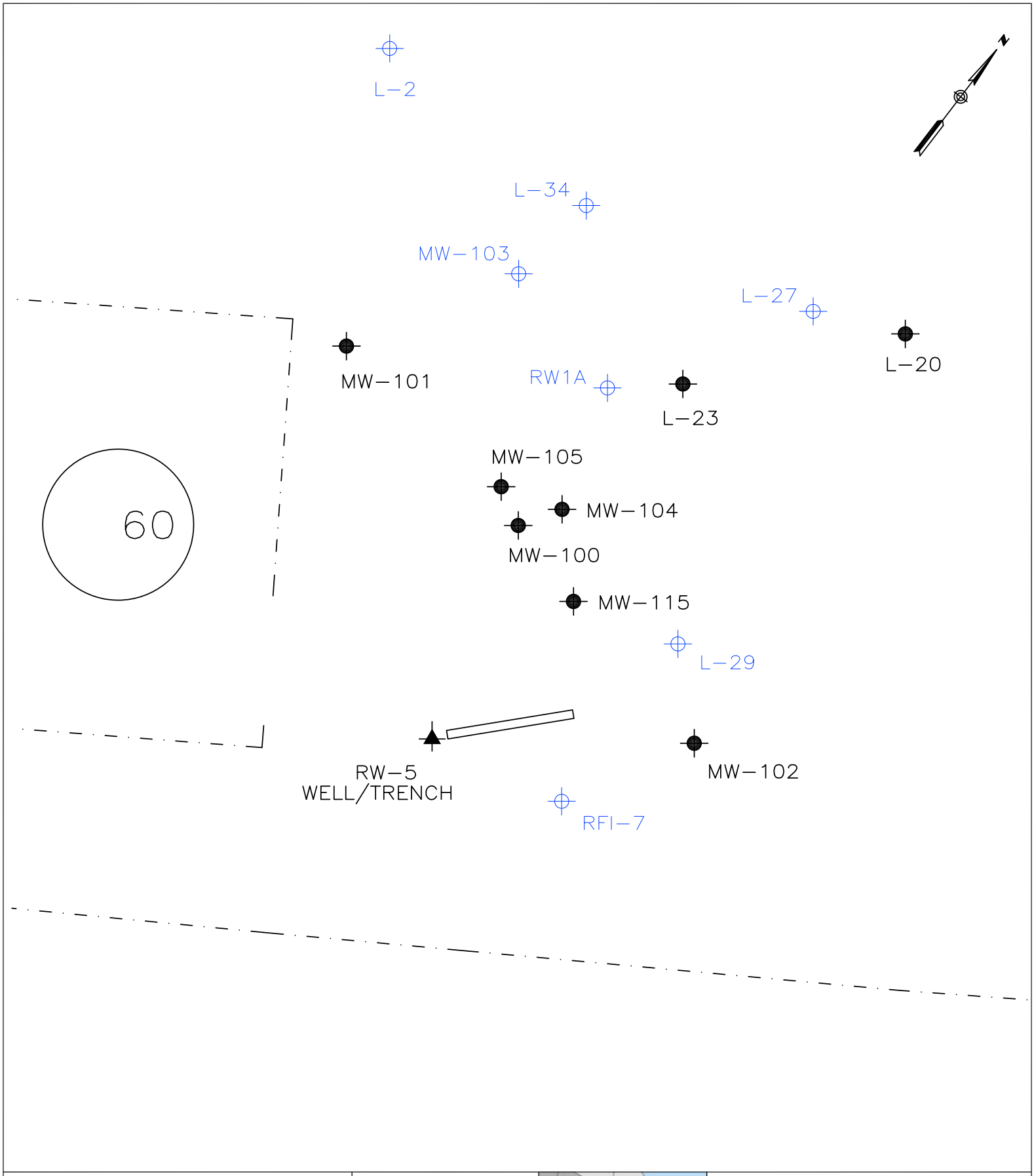
KINDER MORGAN Louis Berger

0 20 40 60 Feet

Figure 3-3
Bulkhead Area Thermal Enhanced Product Recovery System
Product Thickness
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY




ICM-1
VACUUM TANK #2
VACUUM TANK #1
CLEANING PLANT
STEEL SHEATHING
ICM-2
RFI-9R
RW-4
FORMER OWS
WATER TREATMENT PLANT
OW/MW-3
N-43
N-45
SURFACE IMPOUNDMENT
MH-1
RFI-8
SURFACE IMPOUNDMENT
LEGEND
MNA MONITORING WELL
MONITORING WELL
RECOVERY WELL
APPROXIMATE CENTERLINE OF DIKE
APPROXIMATE TOP EDGE OF HOLDING POND
Note: Location of tanks compiled from aerial maps
NAD 1983 State Plane New York East Zone, US Foot
February 2018
Figure 3-4
Northern Bulkhead / ICM-1 and Siphon Building / OWS Areas
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York
KINDER MORGAN
Louis Berger
0 50 100 150 200
Feet



LEGEND

- MNA MONITORING WELL
- MONITORING WELL
- RECOVERY WELL
- APPROXIMATE CENTERLINE OF DIKE
- APPROXIMATE TOP EDGE OF HOLDING POND

Note: Location of tanks compiled from aerial maps

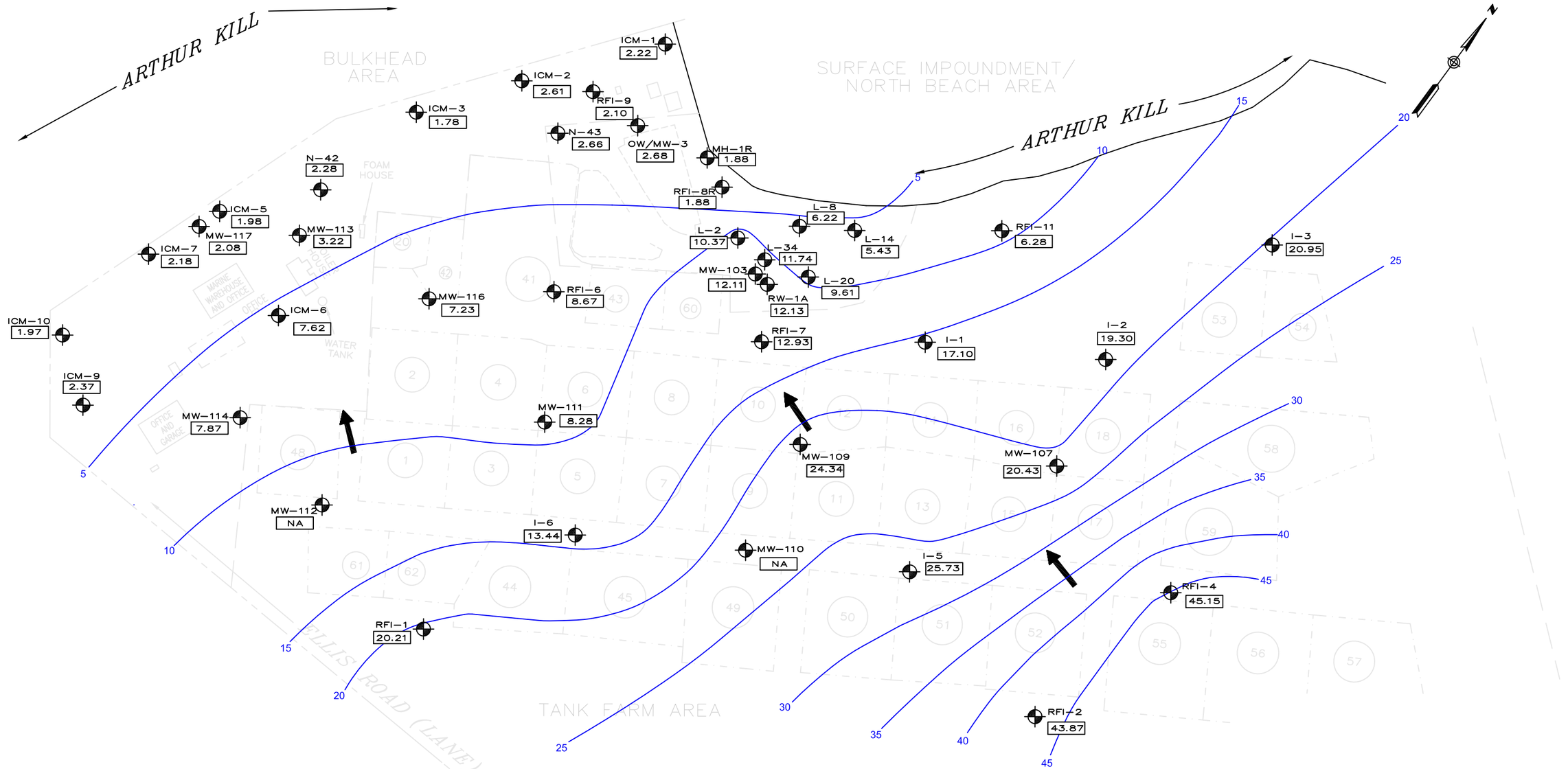
NAD 1983 State Plane New York East Zone, US Foot

February 2018

Figure 3-5
RFI-7 / RW-5 / MW-100 North Beach ICM Area
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 75 150 225 300 Feet



LEGEND

- Monitoring Well
- 19.51 — Water Level Elevation (Feet)
- Inferred Groundwater Contour (Feet)
- Inferred Direction of Groundwater Flow

Note: Location of tanks compiled from aerial maps

NAD 1983 State Plane New York East Zone, US Foot

February 2018

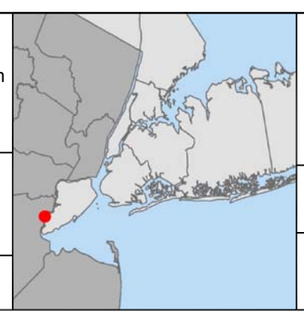


Figure 4-1
Groundwater Elevation Contour Map
January 2017
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 300 600 900
Feet

ARTHUR KILL

ARTHUR KILL

BULKHEAD AREA

SURFACE IMPOUNDMENT / NORTH BEACH AREA

TANK FARM AREA

ELLIS ROAD (LANE)

ICM-1 2.39
ICM-2 3.05
ICM-3 2.39
RFI-9 2.68
N-43 3.11
OW/MW-3 2.27
MH-1R 2.16
N-42 2.73
RFI-8R 2.09
ICM-5 2.08
MW-117 2.13
ICM-7 1.89
MW-113 3.27
L-8 5.19
L-14 5.43
L-2 10.96
L-34 11.17
MW-103 12.63
L-20 9.18
RW-1A 12.60
RFI-11 6.00
I-3 21.23
MW-116 7.83
RFI-6 9.80
ICM-10 1.16
ICM-6 8.61
RFI-7 14.12
I-1 17.75
I-2 20.30
ICM-9 1.48
MW-114 8.94
MW-111 9.52
MW-109 25.81
MW-107 21.53
MW-112 34.64
I-6 14.27
MW-110 NA
I-5 27.84
RFI-4 46.90
RFI-1 19.12
RFI-2 48.71

5 10 15 20 25 30 35 40 45

FOAM HOUSE
MARINE WAREHOUSE AND OFFICE
WATER TANK
OFFICE AND GARAGE

LEGEND

- Monitoring Well
- 19.51 — Water Level Elevation (Feet)
- Inferred Groundwater Contour (Feet)
- Inferred Direction of Groundwater Flow

Note: Location of tanks compiled from aerial maps

NAD 1983 State Plane New York East Zone, US Foot

February 2018

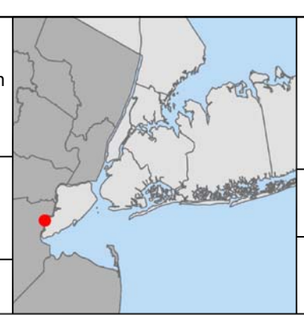
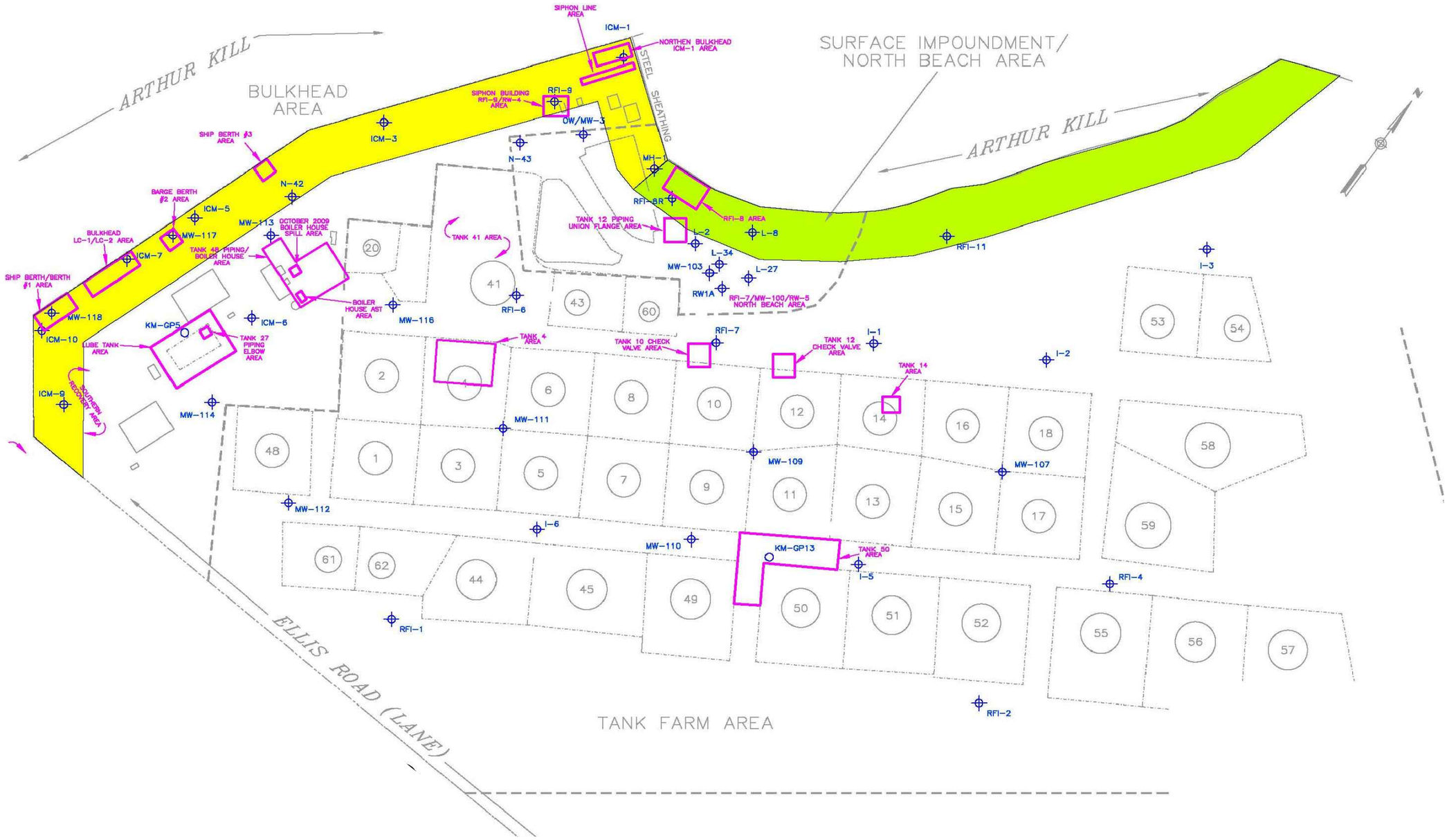


Figure 4-2
Groundwater Elevation Contour Map
July 2017
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 300 600 900 Feet



LEGEND

- MNA PROGRAM WELL
- MNA PROGRAM GEOPROBE MICRO WELL
- BULKHEAD FACILITY PERIMETER
- TIDAL PLAT FACILITY PERIMETER

Note: Location of tanks compiled from aerial maps

NAD 1983 State Plane New York East Zone, US Foot

February 2018

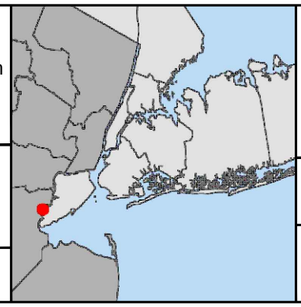
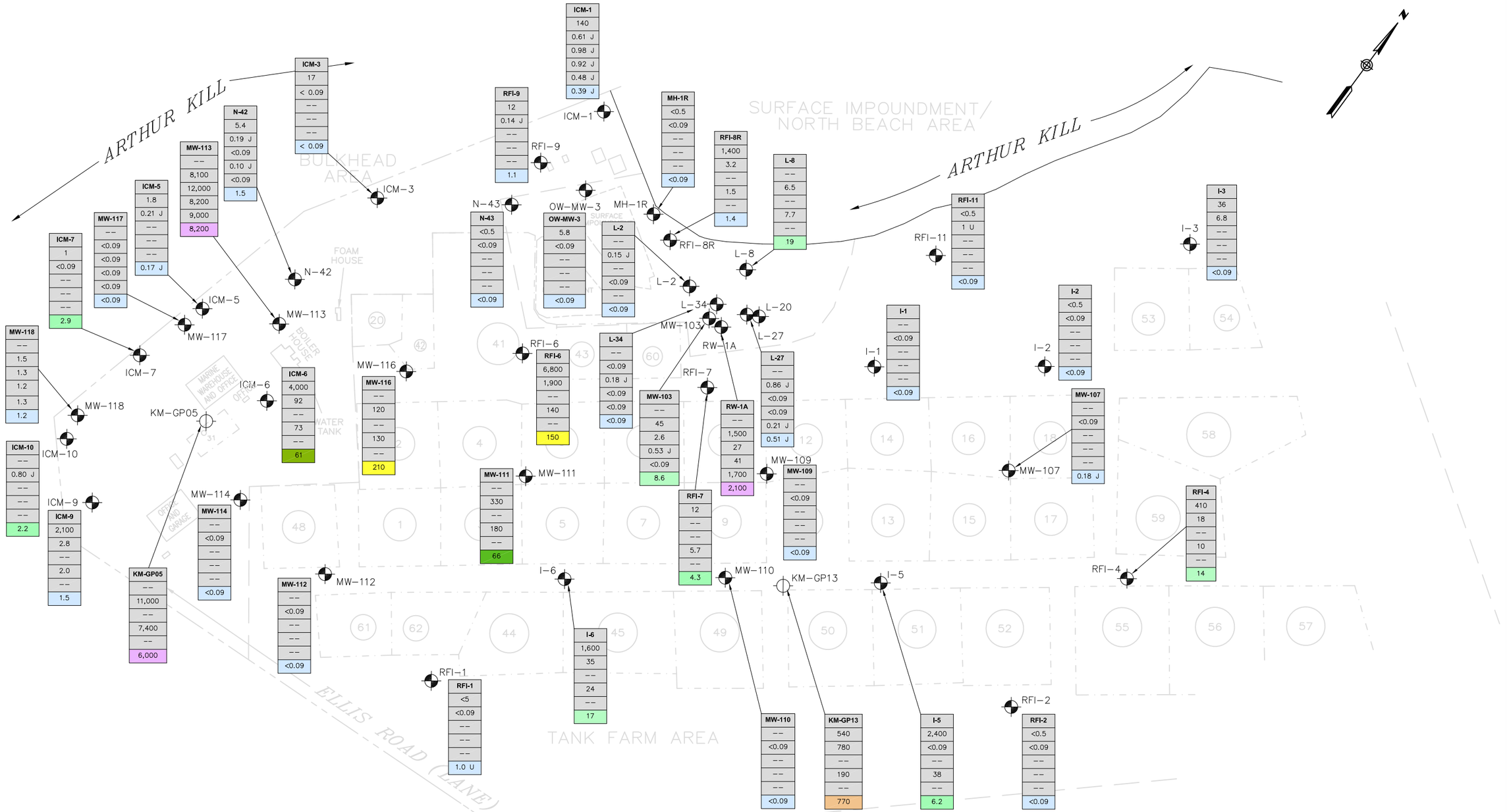


Figure 4-3
Facility Perimeter Well Locations
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 300 600 900
Feet



LEGEND

- Monitoring Well
- Geoprobe Microwell
- [--] Not sampled during this event date
- [9,800] Benzene (ug/l) (J = estimated)
- [<0.2 or 1 U] Not detected

I-1	Monitoring Well Identifier
--	December 1995/March 1997
3.0	October 2016
--	January 2017
--	April 2017
--	July 2017
2.1	October 2017

Benzene Concentration (ug/L)
October 2017 Data

0.00 – 2.0
2.1 – 50
51 – 100
101 – 500
501 –1,000
>1,000

Note: Location of tanks compiled from aerial maps

NAD 1983 State Plane New York East Zone, US Foot

February 2018

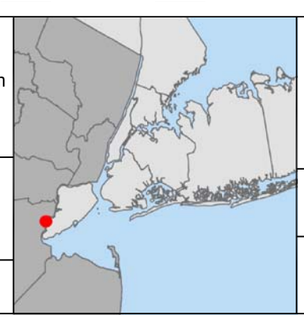
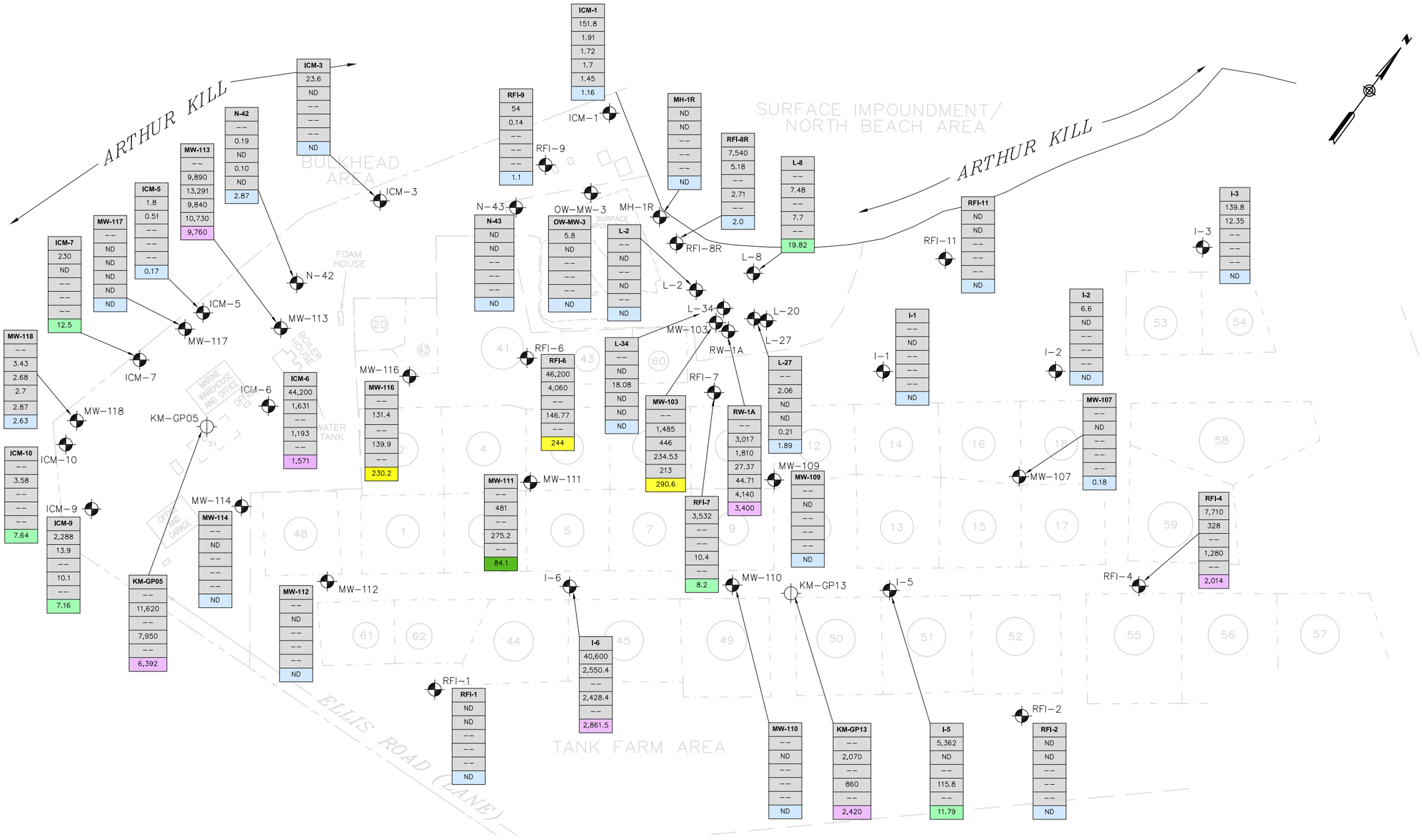


Figure 4-4
Benzene Concentrations In Groundwater
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 300 600 900 Feet



LEGEND

- Monitoring Well
- Geoprobe Microwell
- -- Not sampled during this event date
- 9,800 Total BTEX (ug/l) (J = estimated)
- ND Not detected

I-1	Monitoring Well Identifier
--	December 1995/March 1997
3.0	October 2016
--	January 2017
--	April 2017
--	July 2017
2.1	October 2017

Total BTEX Concentration (ug/L) October 2017 Data

- ND – 5.0
- 5.1 – 50
- 51 – 100
- 101 – 500
- 501 –1,000
- >1,000

Note: Location of tanks compiled from aerial maps

NAD 1983 State Plane New York East Zone, US Foot

February 2018

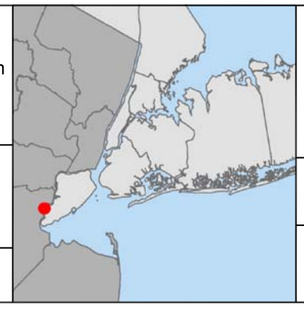


Figure 4-5
Total BTEX Concentration in Groundwater
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, New York

KINDER MORGAN Louis Berger

0 300 600 900 Feet

Appendix A: Data Validation Reports

DATA VALIDATION SUMMARY

Staten Island Terminal (Port Mobil)/PMOB Project
Staten Island, New York
RCRA Corrective Measures Study
Monitored Natural Attenuation Program
TestAmerica Laboratories, SDG Nos. J143555, J143661, J143743, & J143838
Sampling Dates October 24 - 27, 2017

1 INTRODUCTION

Data validation was performed on the benzene, toluene, ethylbenzene, xylenes, (BTEX), methyl tert-butyl ether (MtBE), carbon dioxide, nitrate/nitrite, sulfate, ferrous iron, and methane data generated from the Staten Island Terminal (Port Mobil)/PMOB RCRA Corrective Measures Study, Monitored Natural Attenuation Program for the October 2017 sampling event. These SDG packages included forty one groundwater samples, three field duplicate samples, four aqueous trip blank samples, four aqueous field blank samples, plus associated quality control samples.

BTEX and MtBE analysis was conducted by EPA Method 8260C. Carbon dioxide and methane analyses were conducted by EPA Method RSK-175; sulfate and nitrate/nitrite analyses were conducted by EPA Method 300.0; and ferrous iron analysis was conducted by Standard Methods for Examination of Water and Wastewater, 20th Edition, 3500-Fe D. Analytical data validation was performed utilizing the program-specific criteria listed in the document entitled **Quality Assurance Project Plan for the Kinder Morgan Staten Island Site (former Port Mobil Terminal), Staten Island, NY, January, 2016**. All quality control data presented in the SDGs referenced above were found acceptable, with the exceptions described below. All data reviewed is considered to be valid and usable with the appropriate qualifiers, as noted on the attached Data Validation Summary Tables with the following exceptions. The positive result for ferrous iron in samples N-43-2017Q4, MW-116-2017Q4, RFI-4-2017Q4, RFI-11-2017Q4, RFI-2-2017Q4, and DUP-20171026 was rejected (R) since the concentration in the sample was similar to the concentration in the associated field blank.

Data validation review items and criteria included the following, as specified in the Data Validation Criteria noted above:

Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and Methyl tert-Butyl Ether (MtBE) (USEPA Method 8260C by GC/MS)

- Holding Times
- Surrogate Recovery
- Internal Standard Recovery
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Control Samples (LCS)
- Trip, Equipment, Field, and Method Blanks
- Initial and Continuing Calibration
- Field Duplicate Results
- Compound Identification
- Compound Quantitation and Reported Detection Limits
- Sample Result Verification

Methane (USEPA Method RSK-175 by GC)

- Holding Times
- Surrogate Recovery
- Initial and Continuing Calibration
- MS/MSD Results
- Laboratory Duplicate Results
- Equipment, Field, and Method Blanks
- Laboratory Control Samples
- Field Duplicate Results
- Sample Result Verification

Carbon dioxide, nitrate/nitrite, sulfate, and ferrous iron analysis

- Holding Times from Verified Time of Sample Receipt (VTSR) at the laboratory (carbon dioxide-14 days, nitrate/nitrite-48 hours, sulfate-28 days, and ferrous iron-asap)
- Initial and Continuing Calibration (correlation coefficient >0.995 for all but carbon dioxide RSD <30; limit for recovery 90-110% for anions, 95-105% for ferrous iron, and 70-130% for carbon dioxide)
- MS/MSD Results (limit 90-110% for anions, 75-120% for ferrous iron, and 70-130% for carbon dioxide)
- Laboratory Duplicate Results (RPD limit 15% for anions, 20% for ferrous iron, and 30% for carbon dioxide)
- Equipment, Field, and Method Blanks (contamination should not be detected)
- Laboratory Control Samples (limit 90-110% for anions, 83-115% for ferrous iron, and 70-130% for carbon dioxide)
- Field Duplicate Results
- Sample Result Verification

2 DATA VALIDATION RESULTS

2.1 BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES (BTEX) AND MTBE

2.1.1 Holding Times

All groundwater samples were collected into HCl preserved containers and stored on ice until delivery to the laboratory. All samples were analyzed within the 14-day holding time limit.

2.1.2 Surrogate Recovery

All samples were spiked with surrogate compounds and the recoveries were within the allowable in-house performance criteria.

2.1.3 Internal Standard Recovery

All samples were spiked with internal standard compounds and the recoveries were within the allowable method-specific performance criteria.

2.1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

MS/MSD samples were analyzed at a rate of one per sample group, or 1 per 20 samples, which ever was greater. The recoveries for the MS/MSD performed on samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4 were within allowable in-house performance criteria with the following exceptions. The recoveries for benzene, ethylbenzene, methyl tert-butyl ether, toluene, and xylenes, total in the MS (69%, 77%, 75%, 72%, & 79%, respectively) of sample RFI-1-2017Q4 were less than allowable in-house performance criteria. The positive methyl tert-butyl ether result for sample RFI-1-2017Q4 was qualified as "J", estimated and the non-detected benzene, ethylbenzene, toluene, and xylenes, total results for sample RFI-1-2017Q4 were qualified as "UJ", estimated due to low MS recoveries. The relative percent difference (RPD) between the MS and the MSD results for samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4 were less than allowable program-specific performance criteria of 30%.

2.1.5 Laboratory Control Samples (LCS) and/or Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD)

The appropriate LCS or LCS/LCSD were analyzed and the percent recoveries and/or RPD were within allowable in-house performance criteria.

2.1.6 Trip, Equipment, Field and Method Blanks

Four trip blanks (TB-20171024, TB-20171025, TB-20171026, and TB-20171027) were associated with this sample set. BTEX compounds and MtBE were not detected in the trip blank samples.

Four field blanks (FB-20171024, FB-20171025, FB-20171026, and FB-20171027) were associated with this sample set. BTEX compounds and MtBE were not detected in the field blank samples.

Appropriate laboratory method blanks were conducted and all blank results were non-detect for the compounds analyzed.

2.1.7 Initial and Continuing Calibration

Three gas chromatographs/mass spectrometers (GC/MS) were used to analyze this sample set. One initial seven-point calibration was conducted on each of three instruments (CVOAMS6, CVOAMS11, and CVOAMS15). The average relative response factors (RRFs) and relative standard deviations (RSDs) were calculated for each. The responses were within the program-specific acceptance criteria RSD (<30%) for all compounds. The responses for the RRF were within the program-specific acceptance criteria.

A one-point, midrange, continuing calibration was conducted at a minimum of once every 12 hours on each instrument. All responses were within the acceptable program-specific percent difference (<20%) with the following exception. The percent difference for MtBE (25.9%) exceeded acceptance criteria in one of the continuing calibrations. The non-detected MtBE result in samples TB-20171026, FB-20171026, L-34-2017Q4, and RF1-2-2017Q4 was qualified "UJ", estimated due to calibration criteria failure.

2.1.8 Field Duplicate Results

Three field duplicate samples were collected in this sample set. Sample DUP-20171024 is a duplicate of sample MW-113-2017Q4, sample DUP-20171026 is a duplicate of sample RFI-2-2017Q4, and sample DUP-20171027 is a duplicate of sample MW-103-2017Q4. Results were detected for all compounds of interest in sample MW-113-2017Q4 and its duplicate. The RPD for each compound ranged from 7.4-12.5%. No detections were observed for BTEX and MtBE in sample RFI-2-2017Q4 and its duplicate. Results were detected for all compounds of interest except MtBE in sample MW-103-2017Q4 and its duplicate. The RPD for each compound ranged from 7.8-41%. The results show good precision and are within the program-specific criteria for relative percent difference (<30%) with the following exceptions. The RPDs for ethylbenzene (41%), toluene (40%), and xylenes, total (40%) exceeded RPD of 30% MW-103-2017Q4 and its duplicate. The detected ethylbenzene, toluene, and xylenes, total results in sample MW-103-2017Q4 and its field duplicate DUP-20171027 were qualified "J", estimated due to high field duplicate RPD.

2.1.9 Compound Identification

Selected raw data were reviewed to verify the qualitative and quantitative results for this analysis. Recalculation of selected sample results was conducted to verify the reported results. All results were found to be acceptable as reported.

2.1.10 Compound Quantitation and Reported Detection Limits

Compound quantitation and detection limits were spot checked to verify dilution factors and review detection limits. Reporting limits for all compounds in eight samples were elevated due to the presence of high concentrations of target analytes necessitating sample dilution.

2.1.11 Sample Result Verification

Selected raw data were reviewed to verify the quantitative results for this analysis. Recalculation of selected sample results was conducted to verify the reported results. All results were found to be acceptable as reported.

2.2 CARBON DIOXIDE

2.2.1 Holding Times

All groundwater samples were collected into containers and stored on ice until delivery to the laboratory. All samples were analyzed within the 14-day holding time limit.

2.2.2 Initial and Continuing Calibration

An initial six-point calibration was used to establish a calibration curve. The RSD was calculated. The response was within the program-specific acceptance criteria RSD (<30%).

Continuing calibration checks were conducted at a minimum of once every 24 hours and all met the program-specific criteria for percent difference (<30%).

2.2.3 MS/MSD Results

MS/MSD analyses were completed using groundwater samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4. The samples were spiked to determine if the water matrix was causing any method interferences. Recoveries were within the acceptable range of 70-130%. The RPD between the MS and the MSD results for all sample sets were less than 30%.

2.2.4 Laboratory Duplicate Results

The program-specific criteria states that one duplicate or spiked duplicate sample will be analyzed for each sampling event or 1 per 20 samples collected, whichever is greater. Laboratory MS/MSD analyses (spiked duplicates) were analyzed from groundwater samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4. The RPD between the MS and the MSD results were less than the 30% limit.

2.2.5 Equipment, Field and Method Blanks

Four field blanks (FB-20171024, FB-20171025, FB-20171026, and FB-20171027) were associated with this sample set. Carbon dioxide was not detected in the field blank samples.

Six laboratory method blanks were analyzed in association with this sample set. No carbon dioxide contamination was detected in the method blanks.

2.2.6 Laboratory Control Sample Results

Six laboratory control samples were analyzed and the results were within the 70-130% recovery range specified in the program-specific criteria.

2.2.7 Field Duplicate Results

Three field duplicate samples were collected in this sample set. Sample DUP-20171024 is a duplicate of sample MW-113-2017Q4, sample DUP-20171026 is a duplicate of sample RFI-2-2017Q4, and sample DUP-20171027 is a duplicate of sample MW-103-2017Q4. The RPD were less than 30% indicating good field precision.

2.2.8 Sample Result Verification

The raw data was reviewed to verify that the data was accurately transcribed on to the sample summary sheets. Select calculations were checked to verify the reported sample results. The reporting limit for carbon dioxide in one sample was elevated due to the presence of a high concentration necessitating sample dilution.

2.3 NITRATE/NITRITE

2.3.1 HOLDING TIMES

All groundwater samples were collected into H_2SO_4 preserved containers and stored on ice until delivery to the laboratory. All samples were analyzed within the 48-hour holding time limit with two exceptions. Samples RFI-2-2017Q4 and DUP-20171026 were re-analyzed beyond the holding time

limit for nitrate and flagged "H" by the laboratory. The positive nitrate result in the re-analysis of samples RFI-2-2017Q4 and DUP-20171026 were qualified "J", estimated.

2.3.2 Initial and Continuing Calibration

An initial five or six-point calibration was used to establish a calibration curve. The correlation coefficient was calculated and met the program-specific criteria of >0.995. Continuing calibration checks were conducted every 10 samples during the analyses and all met the program-specific criteria for percent recovery between 90 and 110%.

2.3.3 MS/MSD Results

MS/MSD analyses for nitrate/nitrite were completed using groundwater samples I-5-2017Q4, MW-114-2017Q4, RFI-8R-2017Q4, DUP-20171026, and RFI-1-2017Q4. The samples were spiked to determine if the water matrix was causing any method interferences. Recoveries for all MS/MSD were within the acceptable range of 90-110% with the following exceptions. The recoveries for nitrite in the MS/MSD of samples I-5-2017Q4 (124%/124%), RFI-8R-2017Q4 (142%/140%), and DUP-20171026 (117%/117%) were greater than allowable performance criteria. The positive nitrite result for samples RFI-2-2017Q4 and DUP-20171026 was qualified as "J", estimated due to high MS/MSD recoveries. Since nitrite was not detected in samples I-5-2017Q4 and RFI-8R-2017Q4, no further qualification of the data was required. The recoveries for nitrate in the MS/MSD of samples MW-114-2017Q4 (150%/156%), RFI-8R-2017Q4 (131%/132%), DUP-20171026 (130%/128%), and RFI-1-2017Q4 (121%/125%) were greater than allowable performance criteria. The positive nitrate result for samples MW-114-2017Q4, RFI-8R-2017Q4, RFI-2-2017Q4, and DUP-20171026 was qualified as "J", estimated due to high MS/MSD recoveries. Since nitrate was not detected in sample RFI-1-2017Q4, no further qualification of the data was required. The RPD between the MS and the MSD results for all sample sets were less than 15%.

2.3.4 Laboratory Duplicate Results

The program-specific criteria states that one duplicate or spiked duplicate sample will be analyzed for each sampling event or 1 per 20 samples collected, whichever is greater. Laboratory MS/MSD analyses (spiked duplicates) were analyzed from groundwater samples I-5-2017Q4, MW-114-2017Q4, RFI-8R-2017Q4, DUP-20171026, and RFI-1-2017Q4. The RPD between the MS and the MSD results for all sample sets were less than 15%.

Laboratory duplicate analyses for nitrate/nitrite were analyzed from groundwater samples I-5-2017Q4, MW-114-2017Q4, RFI-8R-2017Q4, N-42-2017Q4, DUP-20171026, and RFI-1-2017Q4. The RPD between the duplicate results for all sample sets was less than 15% or was not calculated if both results were ND or were less than five times the limit of quantitation for nitrate/nitrite.

2.3.5 Equipment, Field and Method Blanks

Four field blanks (FB-20171024, FB-20171025, FB-20171026, and FB-20171027) were associated with this sample set. Nitrate and nitrite were not detected in the field blank samples.

Six laboratory method blanks were analyzed in association with this sample set. No nitrate or nitrite contamination was detected in the method blanks.

2.3.6 Laboratory Control Sample Results

Six laboratory control sample/laboratory control sample duplicate were analyzed and the results were within the 90-110% recovery range specified in the program-specific criteria. The RPD between LCS and the LCSD results were less than 15%.

2.3.7 Field Duplicate Results

Three field duplicate samples were collected in this sample set. Sample DUP-20171024 is a duplicate of sample MW-113-2017Q4, sample DUP-20171026 is a duplicate of sample RFI-2-2017Q4, and sample DUP-20171027 is a duplicate of sample MW-103-2017Q4. The RPD for the field duplicate samples was less than 30% indicating good field precision. The RPD was not calculated if samples selected as field duplicates were ND for nitrate/nitrite.

2.3.8 Sample Result Verification

The raw data was reviewed to verify that the data was accurately transcribed on to the sample summary sheets. Select calculations were checked to verify the reported sample results. The reporting limit for nitrate in three samples was elevated due to the presence of a high concentration necessitating sample dilution.

The nitrate result in the original analysis of sample RFI-2-2017Q4 and its field duplicate DUP-20171026 exceeded the upper calibration limit (flagged "E" by the laboratory). The positive result for nitrate in sample RFI-2-2017Q4 and its field duplicate DUP-20171026 was qualified "J", estimated. Sample RFI-2-2017Q4 and its field duplicate DUP-20171026 were re-analyzed at a dilution beyond the hold time as noted above. The result from the re-analysis of sample RFI-2-2017Q4 and its field duplicate DUP-20171026 should be used for decision making.

2.4 SULFATE

2.4.1 Holding Times

All groundwater samples were collected into containers and stored on ice until delivery to the laboratory. All samples were analyzed within the 28-day holding time limit.

2.4.2 Initial and Continuing Calibration

An initial six-point calibration was used to establish a calibration curve. The correlation coefficient was calculated and met the program-specific criteria of >0.995. Continuing calibration checks were conducted every 10 samples during the analyses and all met the program-specific criteria for percent recovery between 90 and 110%.

2.4.3 MS/MSD Results

MS/MSD analyses were completed using groundwater samples I-5-2017Q4, RFI-8R-2017Q4, MW-110-2017Q4, DUP-20171026, and RFI-1-2017Q4. The samples were spiked to determine if the water matrix was causing any method interferences. Recoveries for all MS/MSD were within the acceptable range of 90-110% with the following exceptions. The recoveries for sulfate in the MS/MSD of samples RFI-8R-2017Q4 (143%/142%), DUP-20171026 (116%/117%), and RFI-1-

2017Q4 (132%/133%) were greater than allowable performance criteria. The positive sulfate result for samples RFI-8R-2017Q4, RFI-2-2017Q4, DUP-20171026, and RFI-1-2017Q4 was qualified as "J", estimated due to high MS/MSD recoveries. The RPD between the MS and the MSD results for all sample sets were less than 15%.

2.4.4 Laboratory Duplicate Results

The program-specific criteria states that one duplicate or spiked duplicate sample will be analyzed for each sampling event or 1 per 20 samples collected, whichever is greater. Laboratory MS/MSD analyses (spiked duplicates) were analyzed from groundwater samples I-5-2017Q4, RFI-8R-2017Q4, MW-110-2017Q4, DUP-20171026, and RFI-1-2017Q4. The RPD between the MS and the MSD results for all sample sets were less than 15%.

Laboratory duplicate analyses were analyzed from groundwater samples I-5-2017Q4, RFI-8R-2017Q4, N-42-2017Q4, MW-110-2017Q4, DUP-20171026, and RFI-1-2017Q4. The RPD between the duplicate results for all sample sets was less than 15% or was not calculated if both results were ND or were less than five times the limit of quantitation for sulfate.

2.4.5 Equipment, Field and Method Blanks

Four field blanks (FB-20171024, FB-20171025, FB-20171026, and FB-20171027) were associated with this sample set. Sulfate was not detected in the field blank samples.

Eight laboratory method blanks were analyzed in association with this sample set. No sulfate contamination was detected in the method blanks.

2.4.6 Laboratory Control Sample Results

Eight laboratory control sample/laboratory control sample duplicate were analyzed and the results were within the 90-110% recovery range specified in the program-specific criteria.

2.4.7 Field Duplicate Results

Three field duplicate samples were collected in this sample set. Sample DUP-20171024 is a duplicate of sample MW-113-2017Q4, sample DUP-20171026 is a duplicate of sample RFI-2-2017Q4, and sample DUP-20171027 is a duplicate of sample MW-103-2017Q4. The RPD for the field duplicate samples was less than 30% indicating good field precision. The RPD was not calculated if samples selected as field duplicates were ND for sulfate.

2.4.8 Sample Result Verification

The raw data was reviewed to verify that the data was accurately transcribed on to the sample summary sheets. Select calculations were checked to verify the reported sample results. The reporting limit for sulfate in three samples was elevated due to the presence of high concentrations of sulfate and/or non-target analytes necessitating sample dilution.

2.5 FERROUS IRON

2.5.1 Holding Times

All groundwater samples were collected into HCL preserved containers and stored on ice until delivery to the laboratory. All samples were analyzed beyond the QAPP "as soon as possible" holding time limit. All samples were qualified "HF" by the laboratory since the samples were analyzed beyond their 15-minute holding time limit. The positive and non-detected result for ferrous iron in all samples was qualified "J or UJ", estimated unless rejected (R) as noted in the Equipment, Field and Method Blanks section below.

2.5.2 Initial and Continuing Calibration

An initial six-point calibration was used to establish a calibration curve. The correlation coefficient was calculated and met the program-specific criteria of >0.995. Continuing calibration checks were conducted every 10 samples during the analyses and all met the program-specific criteria for percent recovery between 95 and 105%.

2.5.3 MS/MSD Results

MS/MSD analyses were completed using groundwater samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4. The samples were spiked to determine if the water matrix was causing any method interferences. Recoveries for all MS/MSD were within the acceptable range of 75-120% with the following exceptions. The recoveries for ferrous iron in the MS of samples RFI-8R-2017Q4 (123%) and N-42-2017Q4 (132%) were greater than allowable performance criteria. The positive ferrous iron result for sample N-42-2017Q4 was qualified as "J", estimated due to high MS recovery. Since ferrous iron was not detected in sample RFI-8R-2017Q4, no further qualification of the data was required. The RPD between the MS and the MSD results for all sample sets were less than 20%.

2.5.4 Laboratory Duplicate Results

The program-specific criteria states that one duplicate or spiked duplicate sample will be analyzed for each sampling event or 1 per 20 samples collected, whichever is greater. Laboratory MS/MSD analyses (spiked duplicates) were analyzed from groundwater samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4. The RPD between the MS and the MSD results for all sample sets were less than 20%.

Laboratory duplicate analyses were analyzed from groundwater sample RFI-8R-2017Q4. The RPD between the duplicate results for all sample sets was less than 20% or was not calculated if both results were ND or were less than five times the limit of quantitation for ferrous iron.

2.5.5 Equipment, Field and Method Blanks

Four field blanks (FB-20171024, FB-20171025, FB-20171026, and FB-20171027) were associated with this sample set. Ferrous iron was not detected in the field blank samples with the following exceptions. Ferrous iron was detected above the reporting limit in FB-20171026 (0.13 mg/L) and FB-20171027 (0.12 mg/L). The positive result for ferrous iron in samples DUP-02171027 and I-2-2017Q4 were qualified as undetected "U" at the reporting limit. The positive result for ferrous iron in samples N-43-2017Q4, MW-116-2017Q4, RFI-4-2017Q4, RFI-11-2017Q4, RFI-2-2017Q4, and DUP-20171026 was rejected (R) since the concentration in the sample was similar to the

concentration in the associated field blank. Finally, the positive result for ferrous iron in sample I-3-2017Q4 was qualified as "J+", estimated due to field blank contamination.

Four laboratory method blanks were analyzed in association with this sample set. Ferrous iron contamination was detected in three of these method blanks (0.0209, 0.0300, and 0.0198 mg/L) at concentrations above the method detection limit but below the reporting limit. The laboratory "B" flag was removed from the ferrous iron result in samples ICM-9-2017Q4, MW-113-2017Q4, I-5-2017Q4, KM-GP13-2017Q4, KM-GP05-2017Q4, DUP-20171024, ICM-10-2017Q4, MW-118-2017Q4, MW-117-2017Q4, OW/MW-3-2017Q4, ICM-1-2017Q4, ICM-5-2017Q4, L-2-2017Q4, ICM-6-2017Q4, FB-20171026, N-43-2017Q4, MW-116-2017Q4, RFI-4-2017Q4, RF1-11-2017Q4, RFI-2-2017Q4, MW-110-2017Q4, RW-1A-2017Q4, and DUP-20171026. The positive result for ferrous iron in samples ICM-7-2017Q7, ICM-3-2017Q4, MH-1-2017Q4, N-42-2017Q4, and L-8-2017Q4 were qualified as undetected "U" at the reporting limit.

2.5.6 Laboratory Control Sample Results

Four laboratory control samples were analyzed and the results were within the 83-115% recovery range specified in the program-specific criteria.

2.5.7 Field Duplicate Results

Three field duplicate samples were collected in this sample set. Sample DUP-20171024 is a duplicate of sample MW-113-2017Q4, sample DUP-20171026 is a duplicate of sample RFI-2-2017Q4, and sample DUP-20171027 is a duplicate of sample MW-103-2017Q4. The RPD for the field duplicate samples was less than 30% indicating good field precision. The RPD was not calculated if samples selected as field duplicates were ND for ferrous iron.

2.5.8 Sample Result Verification

The raw data was reviewed to verify that the data was accurately transcribed on to the sample summary sheets. Select calculations were checked to verify the reported sample results. The reporting limit for ferrous iron in eight samples was elevated due to the presence of high concentrations necessitating sample dilution.

2.6 METHANE

2.6.1 Holding Times

All groundwater samples were collected into HCl preserved containers and stored on ice until delivery to the laboratory. All samples were analyzed within the 14-day holding time limit.

2.6.2 Surrogate Recovery

All samples were spiked with a surrogate compound and the recoveries were within the allowable program-specific performance criteria.

2.6.3 Initial and Continuing Calibration

An initial six-point calibration was used to establish a calibration curve on one instrument. The average response factors (RF) and RSD were calculated. The RSD were within the program-specific

acceptance criteria (<20%) or the correlation coefficient was >0.990. No acceptance criteria were set for RF for GC methods in the QAPP. A one-point continuing calibration was conducted at a minimum of once every 12 hours. All responses were within the acceptable program-specific percent drift range (-20 to +20%).

2.6.4 MS/MSD Results

MS/MSD analyses were completed using groundwater samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4. The samples were spiked to determine if the water matrix was causing any method interferences. Recoveries for the MS/MSD were within allowable in-house performance criteria with the following exceptions. The MS/MSD performed on samples RFI-8R-2017Q4 and N-42-2017Q4 were not useable since the concentrations of methane present in the unspiked samples was greater than four times the amount spiked. The RPD between the MS and the MSD results for all sample sets were less than 30%.

The program-specific criteria states that one duplicate or spiked duplicate sample will be analyzed for each sampling event or 1 per 20 samples collected, whichever is greater. Laboratory MS/MSD analyses (spiked duplicates) were analyzed from groundwater samples RFI-8R-2017Q4, N-42-2017Q4, and RFI-1-2017Q4. The RPD between the MS and the MSD results for all sample sets were less than 30%.

2.6.5 Equipment, Field and Method Blanks

Four field blanks (FB-20171024, FB-20171025, FB-20171026, and FB-20171027) were associated with this sample set. Methane was not detected in the field blank samples.

Four laboratory method blanks were analyzed in association with this sample set. No methane contamination was detected in the method blanks.

2.6.6 Laboratory Control Sample and/or Laboratory Control Sample Duplicate Results

Three laboratory control samples and one laboratory control sample/laboratory control sample duplicate were analyzed and the results were within the 80-120% recovery range specified in the program-specific criteria. The RPD between the LCS and the LCSD results for all sample sets were less than 30%.

2.6.7 Field Duplicate Results

Three field duplicate samples were collected in this sample set. Sample DUP-20171024 is a duplicate of sample MW-113-2017Q4, sample DUP-20171026 is a duplicate of sample RFI-2-2017Q4, and sample DUP-20171027 is a duplicate of sample MW-103-2017Q4. The RPD for the field duplicate samples was less than 30% indicating good field precision. The RPD was not calculated if samples selected as field duplicates were ND for methane.

2.6.8 Sample Result Verification

The raw data was reviewed to verify that the data was accurately transcribed on to the sample summary sheets. Select calculations were checked to verify the reported sample results. The reporting limit for methane in twenty nine samples was elevated due to the presence of high concentrations necessitating sample dilution.

3 DATA VALIDATION RESULTS SUMMARY

All data included in SDG Nos. J143555, J143661, J143743, and J143838 were found to be useable with the following exceptions. The positive result for ferrous iron in samples N-43-2017Q4, MW-116-2017Q4, RFI-4-2017Q4, RFI-11-2017Q4, RFI-2-2017Q4, and DUP-20171026 was rejected (R) since the concentration in the sample was similar to the concentration in the associated field blank. The appropriate qualifiers are indicated in the attached Data Validation Summary Tables.

Data Check, Inc.
81 Meaderboro Road
PO Box 29
New Durham, NH 03855

Gloria J. Switalski:
President

Date: 1/10/2018

Port Mobil RCRA Corrective Measures Study MNA Program
Data Validation Summary Table SDG No. J143555

Sample ID	Nitrate	Qualifier
	Result (mg/l)	
MW-114-2017Q4 DL	6.98	J
Sample ID	**Ferrous Iron**	**Qualifier**
	Result (mg/l)	
All	U HF, HF B	UJ, J

Port Mobil RCRA Corrective Measures Study MNA Program
Data Validation Summary Table SDG No. J143661

Sample ID	Nitrate	Qualifier
	Result (mg/l)	
RFI-98R-2017Q4	0.73	J
Sample ID	**Sulfate**	**Qualifier**
	Result (mg/l)	
RFI-98R-2017Q4	14.9	J
Sample ID	**Ferrous Iron**	**Qualifier**
	Result (mg/l)	
All*	U HF, J HF B, HF B	UJ, J, J
ICM-7-2017Q4	0.090 J HF B	0.10 U
ICM-3-2017Q4	0.089 J HF B	0.10 U

* except ICM-7-2017Q4 & ICM-3-2017Q4

Port Mobil RCRA Corrective Measures Study MNA Program
Data Validation Summary Table SDG No. J143743

Sample ID	Volatile Organic Compounds		Qualifier
	Compound	Result (ug/l)	
TB-20171026	methyl tert-butyl ether	1.0 U	UJ
FB-20171026	methyl tert-butyl ether	1.0 U	UJ
L-34-2017Q4	methyl tert-butyl ether	1.0 U	UJ
RFI-2-2017Q4	methyl tert-butyl ether	1.0 U	UJ
Sample ID	**Sulfate**	**Qualifier**	
	Result (mg/l)		
RFI-2-2017Q4	31.1	J	
DUP-20171026	30.8	J	
Sample ID	**Nitrate**	**Qualifier**	
	Result (mg/l)		
RFI-2-2017Q4	5.98 E	J	
RFI-2-2017Q4 DL	6.43 H	J	
DUP-20171026	6.05 E	J	
DUP-20171026 DL	6.74 H	J	
Sample ID	**Ferrous Iron**	**Qualifier**	
	Result (mg/l)		
All*	U HF, J HF B, HF B	UJ, J, J	
N-43-2017Q4	0.13 HF B	R	
MH-1-2017Q4	0.068 J HF B	0.10 U	
MW-116-2017Q4	0.14 HF B	R	
RFI-4-2017Q4	0.12 HF B	R	
N-42-2017Q4	0.046 J HF B	0.10 U	
RFI-11-2017Q4	0.16 HF B	R	
RF1-2-2017Q4	0.11 HF B	R	
DUP-20171026	0.19 HF B	R	
L-8-2017Q4	0.0097 J HF B	0.10 U	

* except N-43-2017Q4, MH-1-2017Q4, MW-116-2017Q4, RFI-4-2017Q4, N-42-2017Q4, RFI-11-2017Q4, RFI-2-2017Q4, DUP-20171026, & L-8-2017Q4

Port Mobil RCRA Corrective Measures Study MNA Program
Data Validation Summary Table SDG No. J143838

Sample ID	Volatile Organic Compounds		Qualifier
	Compound	Result (ug/l)	
DUP-20171027	ethylbenzene	100	UJ
DUP-20171027	toluene	54	UJ
DUP-20171027	xylenes, total	270	UJ
RFI-1-2017Q4	methyl tert-butyl ether	6.2	J
RFI-1-2017Q4	benzene	1.0 U	UJ
RFI-1-2017Q4	ethylbenzene	1.0 U	UJ
RFI-1-2017Q4	toluene	1.0 U	UJ
RFI-1-2017Q4	xylenes, total	2.0 U	UJ
MW-103-2017Q4	ethylbenzene	66	J
MW-103-2017Q4	toluene	36	J
MW-103-2017Q4	xylenes, total	180	J

Sample ID	Sulfate	Qualifier
	Result (mg/l)	
RFI-1-2017Q4	14.0	J

Sample ID	Ferrous Iron	Qualifier
	Result (mg/l)	
All*	U HF, J HF, HF	UJ, J, J
DUP-20171027	0.094 J HF	0.10 U
I-2-2017Q4	0.075 J HF	0.10 U
I-3-2017Q4	0.18 HF	J+

* except DUP-20171027, I-2-2017Q4, & I-3-2017Q4

Appendix B: Laboratory Analytical Summary Data Packages

Appendix C: Historic MNA Groundwater Sampling Results

Appendix C-1: BTEX, MTBE, and TEAP Parameters

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
I-1	7/21/2004	P	<0.2	<0.2	<0.2	1.6J	*1.6*	75	<0.04	25.3	0.13	4.19	94	0.04
	1/12/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	58	---	---	---	---	---	---
	7/13/2005	P	<0.2	<0.2	0.4J	<3	*0.4*	55	<0.04	25.4	0.03J	1.58	68J	0.016J
	1/18/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	44	---	---	---	---	---	---
	7/12/2006	P	<0.2	<0.2	<0.2	4.7	*4.7*	45	<0.040	23.2	0.017J	1.8	67	0.018J
	7/11/2007	P	<1.0	<0.2	<0.2	<3.0	*ND*	39	<0.040	22.3	0.026J	0.97	81	0.037J
	7/9/2008	P	<0.2	<0.2	<0.2	<1.0	*ND*	38	<0.040	20	0.035U	0.32	84	0.011UJ
	7/8/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	32	<0.04	20.4	0.25	0.67	74	<0.01
	7/14/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	31	<0.040	19.7	---	---	57	0.011J
	7/14/2011	P	<0.2	<0.2	0.9	<0.6	*0.9*	28	<0.040	18.6	0.019	1.65	62	<0.01
	10/17/2012	P	<0.2	<0.2	2.0	1.0J	*3.0*	22	0.07J	18.5	0.016UJ	1.46	78	<0.005
	11/4/2013	P	<0.2	<0.2	2.1	<0.6	*2.1*	15	<0.040	17.3	0.019J	0.51	78	<0.003
	10/23/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	19	0.062J	18.1	0.066	1.85	73	<0.003
	10/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	18	< 0.1	1.6	16.3	0.1J	17J	<0.005
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	14	0.085J	1.3	<0.10J	1.1	96	<0.005
	10/27/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	14	<0.016	<0.019	0.0087 UJ	1.5	83	<0.005
I-2	3/20/1997	P	<0.5	<1	<1	6.6	*6.6*	---	---	---	---	---	---	---
	1/28/2003	P	<2	3.6	4.5	4.2	*12.3*	---	<0.04	<1.5	8.7	0.61	29	3.2
	7/22/2003	P	<5.0	2.7J	11J	7.1J	*20.8*	---	<0.040	<3.0	16.3	3.59	86	3
	1/20/2004	P	3.6J	3.1J	9.4J	7.3J	*23.4*	---	<0.04	3.6J	25.1	0.14	73	7.3
	7/21/2004	P	1.0	1.0	1.2	1.2J	*4.4*	<0.3	0.36	4.1J	3.6	2.83	35	0.99
	1/12/2005	P	1.3	1.0	1.5	1.5J	*5.3*	<1	---	---	---	---	---	---
	7/13/2005	P	<5	<1	1.5	2.6J	*4.1*	9.5	<0.04	7.2	21.7	0.11J	97J	3.3J
	1/18/2006	P	<5	<5	2.0	3.5	*5.5*	<1	---	---	---	---	---	---
	7/12/2006	P	<10	2.7	9.3	8.5	*20.5*	11	<0.040	<3.0	12	0.12J	58	2.3J
	7/11/2007	P	4.4	2.2	1.8	4.1J	*12.5*	<10	0.38	2.8J	2.1	<0.090	62	1.6J
	7/9/2008	P	<5.0	1.9	2.0	2.6	*6.5*	<10	0.048	<2.5	7.6	<0.090	59	2.4J
	7/8/2009	P	<2	1.0	1.0	1.4J	*3.4*	<4	<0.04	<2.5	6.3	<0.09	31	0.55
	7/14/2010	P	<4.0	1.3	1.6	2.0J	*4.9*	<5.0	<0.040	44	17.8	0.46	67	0.92
	4/5/2011	P	1.3	0.3	0.7	0.9	*3.2*	<0.3	---	---	---	---	---	---
	7/14/2011	P	0.9	0.7	0.5	<2.0	*2.1*	<2.0	0.076	9.6	4.0	0.16	54	0.68
	10/17/2012	P	<3	<2	1.9	4.1	*6*	8.5	<0.04	3.6J	12.1	<0.09	96	2.9
	11/5/2013	P	1.6	<4.0	1.9	<4.0	*3.5*	<7.0	<0.040	20.9	20.1	<0.090	86	1.5
	10/21/2014	P	3.4	<4	1.9	<4	*5.3*	8.9	<0.04	4.1J	11	1.04	90	1.2
	10/22/2015	P	0.39J	0.5 J	<1.0	0.32J	*1.21*	1 U	< 0.1	< 1	0.67	0.093J	14 J	0.71J
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.39J	0.019J	41.5	0.070J	<1.0	130	0.62
	10/27/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	0.20	4.9	0.10 U	<1.0	78	0.95
I-3	3/20/1997	P	36	4.8	46	53	*139.8*	---	---	---	---	---	---	---
	8/1/2000	P	43	<10	<11	<9.4	*43*	---	0.039J	<6	26.8	1.13	95.92	3.63
	1/9/2001	P	79	13	140	24	*256*	---	0.17	<3.0	32.3	0	110	5.4
	7/24/2001	D	69	14	16.J	16.J	*115*	---	<0.040	<3.0	32	---	110	3.4
	7/24/2001	P	70	14	15.J	16.J	*115*	---	<0.040	<3.0	30	0	120	3.8
	1/17/2002	P	40	15	31	31	*117*	---	<0.040	<1.5	30	4.41	97	3
	7/17/2002	P	64J	9.4J	11J	12J	*96.4*	---	<0.04	<1.5	31	4.3	120	3.6
	1/28/2003	P	44	9.3	43	27	*123.3*	---	<0.04	<3	26	0.1	79	6.4
	7/22/2003	P	9.8	1.8	16	57	*84.6*	---	<0.040	<3.0	26.4	3.29	80	0.19
	1/19/2004	P	<5	0.8J	0.8J	4.1	*5.7*	---	<0.04	<1.5	23.3	0.19	77	0.78

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
I-3	7/20/2004	P	12	1.3	<1.2U	<4.4U	*13.3*	180	<0.04	<6	20.6	0.97	68	0.66
	1/12/2005	P	31	6	24	8.5	*69.5*	120	---	---	---	---	---	---
	7/12/2005	P	13	2.5	3.1	<10	*18.6*	220	<0.04	10.4	18.3	0.28J	44J	1.1J
	1/20/2006	P	<10	5.3	19	<10	*24.3*	120	---	---	---	---	---	---
	7/12/2006	P	1.4	<0.2	<0.2	5.6	*7*	330	<0.040	21.1	14.5	0.19J	37	0.11J
	7/11/2007	P	17	<5.0	3.1	5.0J	*25.1*	24	<0.040	17.8J	10.7	<0.090	31	0.033J
	7/9/2008	P	4.1	0.7	0.7	1.1	*6.6*	260	<0.040	6.8	13.7	0.43	40	1.4J
	7/8/2009	P	1.5	<0.2	<0.2	<0.6	*1.5*	330	<0.04	23	13.1	0.2	31	0.21
	7/15/2010	P	0.8J	<0.2	<0.2	<0.6	*0.8*	290	<0.040	29.6	8	0.10J	16	0.029
	7/14/2011	P	3.2	0.7	0.7	<3.0	*4.6*	170	<0.040	<2.5	14.7	0.17	71	0.64
	10/17/2012	P	33J	9.3J	11J	15J	*68.3*	140J	<0.04	<5.0	27.2	<0.09	95	4.8
	11/4/2013	P	2.5	<1.0	0.7	1.8 J	*11.3*	240	<0.040	17.0	11.4	<0.090	39	0.21
	10/23/2014	P	18	6.1	3.8	6.7	*34.6*	130	<0.04	<5.0	22.2	<0.4	67	1.7
	10/21/2015	P	8.9	5.2	2.3	4.1	20.5	100	<0.10	<1.0	2.89	0.4	9,100	1.2
	10/20/2016	P	6.8	2.7	0.75J	2.1	12.35	220	<0.10	6.06	0.11J	1.5	88	0.63
	10/27/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	130	<0.016	0.94	0.18J+	<1.0	56	0.23
I-5	3/18/1997	P	2400	62	1300	1600	*5362*	---	---	---	---	---	---	---
	7/31/2000	P	220	2.9	200	110	*532.9*	---	<0.030	32	7.5	3.63	157.3	1.52
	1/9/2001	P	31	0.48J	13	<3.0	*44.48*	---	<0.030	35.3	2.4	4.77	110	0.37
	7/26/2001	P	520	16	560	360	*1456*	---	<0.040	20	14	0.0	190	3.6
	1/17/2002	P	<0.20	<0.20	0.25J	13	*13.25*	---	<0.040	41	1.4	0.0	150	0.41
	7/18/2002	D	560	59	780	1300	*2699*	---	<0.04	10.1	20.8	---	210	3.1
	7/18/2002	P	640	64	890	1500	*3094*	---	<0.04	10.8	21	4.52	190	3.8
	1/28/2003	P	690	11	680	170	*1551*	---	<0.04	9.1	26	0.62	170	7
	7/22/2003	P	970	22	1400	610	*3002*	---	<0.040	6.2	20.4	0.0	190	8.4
	1/19/2004	D	300	4.6	390	67	*761.6*	---	<0.04	26.1	14.6	---	180	4.4
	1/19/2004	P	310	5.1	410	68	*793.1*	---	<0.04	25.5	15.1	0.75	180	5.1
	7/20/2004	P	490	7.4J	830	140	*1467.4*	420	<0.04	8.6J	27.9	2.54	200	7.7
	1/13/2005	P	190	3.2	270	26	*489.2*	510	---	---	---	---	---	---
	7/13/2005	P	360	18	870	740	*1988*	350	<0.04	7.6J	27.4	0.82	120J	6.8J
	1/17/2006	P	310	6.6	530	49	*895.6*	300	---	---	---	---	---	---
	7/11/2006	P	280	6.2	560	45	*891.2*	340	<0.040	17.2	23.6	0.18J	160	6.9J
	1/10/2007	P	110	4.3J	230	18	*362.3*	530	---	---	---	---	---	---
	7/11/2007	P	230	6.3	650	62J	*948.3*	260	<0.040	11.3	23.5	<0.090	180	8.9J
	7/8/2008	p	73	190	1.9	14	*278.9*	430	<0.040	28.9	8.7	0.72	150	3.9
	1/8/2009	p	12	26	0.3	1.5	*39.8*	760	---	---	---	---	---	---
	7/7/2009	P	160J	5.1J	570J	41J	*776.1*	150J	<0.04	8.7	23.7	0.72	140	9.4
	1/6/2010	P	22	0.6J	62	3.4	*88*	470	---	---	---	---	---	---
	7/13/2010	D	49	2.1U	180	11	*240*	380	<0.040	23.4	9.3	2.27	190	3.1J
	7/13/2010	P	37	1.3U	150	8.9	*195.5*	380	<0.040	25.9	9.4	5.53	170	2.2J
	1/14/2011	P	<0.2	<0.2	0.6	2.1	*2.7*	450	---	---	---	---	---	---
	7/15/2011	P	75	3.5	270	23	*371.5*	190	<0.040	12.3	16.1	1.3	120	5.2
	1/19/2012	P	0.4J	0.3J	1.4	1.6J	*3.7*	1.8	---	---	---	---	---	---
	10/18/2012	P	<0.2	<0.2	10	<0.6	*10*	450	<0.04	37.2	1.3	1.03	120	0.083
	1/16/2013	P	4.4	0.4J	8.5	1.4J	*14.7*	330	---	---	---	---	---	---
	5/16/2013	P	54J	4.1J	99 J	15J	*172.1*	160J	---	---	---	---	---	---
	10/29/2013	P	4.3	0.4J	2.0	1.1J	*7.8*	330	<0.040	33.0	2.9	0.93	120	0.5

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
I-5	1/31/2014	P	12	0.7J	25	3.7	*41.4*	240	---	---	---	---	---	---
	4/15/2014	P	65J	4.9J	180J	21J	*270.9*	81J	---	---	---	---	---	---
	10/17/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	330	<0.04	34.5	1.7	1.44	120	0.073
	4/21/2015	P	48	2.1	110	10	170.1	19	---	---	---	---	---	---
	10/20/2015	P	0.49J	<1.0	<1.0	<2.0	0.49	300	<0.1	1.2	30.5	2.7	24J	0.12
	4/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	250	---	---	---	---	---	---
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	270	0.027J	30.6	0.15J	1.3	150	0.062
	4/26/2017	P	38	2.1	68	7.7	115.8	26	---	---	---	---	---	---
	10/24/2017	P	6.2	0.49J	3.9	1.2J	11.79	92	<0.016	26.8	4.7J	<1.0H	150	2.5
I-6	3/18/1997	P	1600	3000	6000	30000	*40600*	---	---	---	---	---	---	---
	7/31/2000	P	940	1800	3800	19000	*25540*	---	<0.030	<6	38.3	2.32	129.97	4.62
	1/17/2002	P	420	1000	3600	18000	*23020*	---	<0.040	<1.5	47	0.51	190	2.8
	7/18/2002	P	350	390	2200	11000	*13940*	---	<0.04	<1.5	46	3.02	220	7.9
	1/28/2003	P	360	710	2900	13000	*16970*	---	<0.04	<6	45	0.16	130	6
	7/22/2003	P	290	450	3600	14000	*18340*	---	<0.040	<3.0	53.1	0.45	190	5
	1/20/2004	P	440	220	3900	17000	*21560*	---	<0.04	<6	45.2	0.2	190	5.7
	7/20/2004	P	570	140	3900	16000	*20610*	66J	<0.04	<3	36.7	1.24	170	7
	1/13/2005	P	480	100	2600	11000	*14180*	59	---	---	---	---	---	---
	7/13/2005	P	700	210	3300	13000	*17210*	<100	<0.04	<1.5	32.6	<0.09	110J	5.3J
	1/19/2006	P	380J	59J	1300J	7600J	*9339*	55J	---	---	---	---	---	---
	7/14/2006	P	410	220	2200	7900	*10730*	41	<0.040	<3.0	30.3	---	110	5.6J
	1/10/2007	P	360	190	2600	8400	*11550*	43	---	---	---	---	---	---
	7/12/2007	P	360	210	3400	12000	*15970*	<100	<0.040	<10.0	35.4	<0.090	150J	6.5J
	1/9/2008	P	290	150	2100	7000	*9540*	50	---	---	---	---	---	---
	7/10/2008	D	---	---	---	---	---	---	0.04	5	33.2	0.09	---	---
	7/10/2008	P	290	2500	110	8200	*11100*	43	<0.040	<5.0	33.8	<0.090	150	9.1
	1/22/2009	P	230	3300	57	11000J	*14587*	56	---	---	---	---	---	---
	7/9/2009	P	170	59	2000	7200	*9429*	<50	<0.04	<2.5	35.7	<0.09	190	5.3
	1/6/2010	P	180	100	1300	4000	*5580*	31	---	---	---	---	---	---
	7/15/2010	P	120	37	1800	6200	*8157*	<50	<0.040	<10.0	39.6	<0.090	97	9.1
	1/14/2011	D	130	27	1400	4500J	*1557*	<30	---	---	---	---	---	---
	1/14/2011	P	130	27	1300	4400	*5857*	<25	---	---	---	---	---	---
	7/15/2011	P	110	34	1500	3900	*5544*	<50	0.27U	<2.5	32.2	<0.090	87	7.7
	1/18/2012	P	59	19	1200	4000	*5278*	30	---	---	---	---	---	---
	10/18/2012	P	72	22	1200	3800	*5094*	48	<0.04	<2.5	30.6	<0.09	140	13
	1/15/2013	P	76	31	1600	5300	*7007*	75	---	---	---	---	---	---
	5/16/2013	P	100	29	1900	5600	*7629*	82	---	---	---	---	---	---
	11/4/2013	P	73	16	1200	3400	*4689*	<61	<0.040	<2.5	33.6	<0.090	140	15
	1/28/2014	P	83	19	1100	4200	*5402*	73	---	---	---	---	---	---
	4/16/2014	P	72	13	1200	3200	*4485*	<68	---	---	---	---	---	---
	10/23/2014	P	63	10	1100	3500	*4673*	49	<0.04	<2.5	32.2	<0.4	130	13
	4/23/2015	P	33	4.7 J	890	2,400	3,327.7	3.7 J	---	---	---	---	---	---
	10/22/2015	P	35	6.5 J	1,100	3,400	4,541.5	5.7 J	<0.1	<1	< 0.6	1.4	23J	7.1
	4/22/2016	P	25	5.1J	980	2,000	3,010.1	4.4J	---	---	---	---	---	---
	10/18/2016	P	35	5.4	810	1,700	2,550.4	5.2	<0.1	1.08	5.1J	<1.0	170	10
	4/22/2017	P	24	4.4	1,100	1,300	2,428.4	3.4	---	---	---	---	---	---
	10/27/2017	P	17	4.5	940	1,900	2,861.5	4.3 J	<0.016	1.22	12.5J	<1.0	230	10

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
ICM-1	12/12/1995	P	140	3.4	1.8	6.6	*151.8*	---	---	---	---	---	---	---
	7/26/2000	P	2.4	2.9	2.6	18	*25.9*	---	<0.030	32	---	5.43	34.03	0.54
	1/9/2001	P	10	21	23	340	*394*	---	<0.030	29.8	3.8	0.62	37	3.8
	7/24/2001	P	13	0.95J	1.5J	5.1J	*20.55*	---	<0.040	<1.5	21	0.89	63	6.7
	1/15/2002	P	49	60	7.9	160	*276.9*	---	<0.040	23	3.2	0.47	36	6.3
	7/18/2002	P	120	350	37	170	*677*	---	<0.04	<1.5	10.5	0.12	49	11
	2/2/2004	P	150	46	97	590	*883*	---	<0.04	<3	25.3	0.14	110	10
	7/22/2004	P	100J	66J	95J	800J	*1061*	72J	<0.04J	<6	38.2	0.6	140J	12J
	10/5/2004	P	120	34	75	390	*619*	71	---	---	---	---	---	---
	1/13/2005	P	140	48	140	790	*1118*	110	---	---	---	---	---	---
	7/13/2005	D	88	1.8	<0.2	140	*229.8*	39	<0.04	<6	39.4	<0.09	100J	12J
	7/13/2005	P	90	2	<1	150	*242*	39	<0.04	<6	40.1	<0.09	110J	12J
	10/27/2005	P	120	19	33	100	*272*	39	---	---	---	---	---	---
	4/12/2006	P	12J	<1.6UJ	1.5J	6.8J	*20.3*	33J	---	---	---	---	---	---
	7/13/2006	D	---	---	---	---	---	---	<0.040	<6.0	35.6	<0.090	---	---
	7/13/2006	P	53	5.4	11	26	*95.4*	29	<0.040	<6.0	37.4	<0.090	100	13J
	10/11/2006	P	58	4.0	4.1	14	*80.1*	15	---	---	---	---	---	---
	1/11/2007	P	42	9.4	7.8	35	*94.2*	53J	---	---	---	---	---	---
	4/7/2009	P	34	1.0	6.2	7.2	*48.4*	23	---	---	---	---	---	---
	7/7/2009	P	30	0.5	4.3	5.1	*39.9*	5.2	<0.04	<2.5	51	<0.090	140	20
	4/6/2010	P	21	0.5J	3	4.2	*28.7*	6.7	---	---	---	---	---	---
	7/13/2010	P	19	0.7UJ	3.6	2.4J	*25*	7.4	<0.040	<5.0	48.6	<0.090	120	16
	10/5/2010	P	11	0.7J	2.9	1.9J	*16.5*	5.3	---	---	---	---	---	---
	1/13/2011	P	12	0.6	0.6	2.8	*16*	4.4	---	---	---	---	---	---
	4/6/2011	P	13	0.4	0.4	2.0	*15.8*	3.7J	---	---	---	---	---	---
	7/13/2011	P	9.1	0.5	2.5	1.4	*13.5*	5.9	<0.040	<10.0	39.8	<0.090	140	14
	10/25/2011	P	7.3	0.7	2.2	1.3	*11.5*	6.4	---	---	---	---	---	---
	1/18/2012	P	4.6J	<1.0	7.5	<3.0	*12.1*	5.1	---	---	---	---	---	---
	4/10/2012	P	4.3	1.0J	9.2	2.4J	*16.9*	7.2	---	---	---	---	---	---
	7/20/2012	P	7.9	0.9J	4.1	1.6J	*14.5*	5.4	---	---	---	---	---	---
	10/16/2012	P	2.1	0.7J	3.7	1.5J	*8*	6.9	<0.04	<10	28.2U	<0.090	110	13
	1/15/2013	P	3.6	0.4 J	2.2	1.2J	*7.4*	5.5	---	---	---	---	---	---
	5/15/2013	P	2.9	0.7 J	2.8	1.8J	*8.2*	5.6	---	---	---	---	---	---
	7/23/2013	P	2.6	0.7 J	2.6	1.5J	*7.4*	4.4	---	---	---	---	---	---
	10/30/2013	P	2.3	0.6 J	2.2	1.4J	*6.5*	8.6	<0.040	<10.0	42.5	<0.090	120	14
	1/30/2014	P	2.00	0.7 J	3.3	2.7	*8.7*	4.7	---	---	---	---	---	---
	4/17/2014	P	2.8	0.5 J	6.1	1.7	*11.1*	6.2	---	---	---	---	---	---
	7/24/2014	P	2.9	0.4 J	3.5	<2	*6.8*	<7	---	---	---	---	---	---
	10/20/2014	P	1.7	0.7 J	<4.0	1.8	*4.2*	5.6	<0.04	<10	30.9	<0.4	120	19
	2/3/2015	P	1.7J	0.42 J	<1.0	<2.0	2.12	2.2	---	---	---	---	---	---
	4/23/2015	P	3.0	0.44 J	<1.0	1.71 J	5.15	1.7	---	---	---	---	---	---
	7/22/2015	P	2.2	0.51 J	<1.0	<2.0	2.71	1.2	---	---	---	---	---	---
	10/21/2015	P	0.73J	0.48 J	<1.0	0.9 J	2.11	2.0	<1.0	<1.0	0.21 J	2.8	17	10
	1/20/2016	P	0.41J	0.49J	<1.0	1.3J	2.2	4.6	---	---	---	---	---	---
	4/22/2016	P	1.1	0.29J	<1.0	<2.0	1.39	2.2	---	---	---	---	---	---
	7/21/2016	P	0.70J	0.49J	<1.0	0.42J	1.61	1.9	---	---	---	---	---	---
	10/21/2016	P	0.61J	0.51J	<1.0	0.79J	1.91	2.9	<0.10	0.56J	0.11J	<1.0	140	15

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
ICM-1	1/19/2017	P	0.98J	0.39J	<0.30	0.35J	1.72	2.3	---	---	---	---	---	---
	4/28/2017	P	0.92J	0.39J	<0.30	0.39J	1.7	3.0	---	---	---	---	---	---
	7/26/2017	P	0.48J	0.51J	<0.30	0.46J	1.45	1.9	---	---	---	---	---	---
	10/25/2017	P	0.39J	0.36J	<0.30	0.41J	1.16	2.1	<0.016	0.85	7.5J	<1.0H	89	16
ICM-10	1/10/2001	P	33	<6	5.0	<17	*38*	---	0.035J	<1.5	34	0.0	98	14
	1/21/2002	P	14	1.6	4.4	3.8	*23.8*	---	<0.040	<6.0	40	---	110	22
	7/25/2002	P	4.8	2.6	<5	4.8	*12.2*	---	<0.04	<3	38	4.0	110	15
	1/30/2003	P	14	1.9	2.7	5.1	*23.7*	---	<0.04	<3	50.4	0.15	97	20
	7/23/2003	P	7.1	1.4	1.9	4.1	*14.5*	---	<0.040	<3.0	32.2	3.5	120	10
	2/2/2004	P	16J	2.2J	2.9J	6.7J	*27.8*	---	<0.04	10.4	34	0.0	78	14
	7/26/2004	P	9.8	3.0	2.9	5.6	*21.3*	39	<0.04	<1.5	33	2.04	730	4.6
	7/14/2005	P	6.0	2.1	1.9	4.9	*14.9*	42	<0.04	<6	36.5	<0.09	100J	10J
	7/13/2006	P	8.9	3.1	1.7	4.6	*18.3*	<50	<0.040	<6.0	31.1	0.24J	75	13J
	7/11/2007	P	7.7	2.5	1.7	5.0J	*16.9*	<25	<0.040	<12.5	29.7	<0.090	93	18J
	7/9/2008	P	4.7	1.4	1.8	3.7	*11.6*	19	<0.040	<5.0	33.5	<0.090	120	13J
	7/7/2009	P	5.4	2.3	2.2	7.4	*17.3*	<10	<0.04	<5	45.5	<0.09	93	18
	7/13/2010	P	5.0	2.2U	2.1	12	*19.1*	<50	<0.040	<5.0	33.1	<0.090	59	18
	7/14/2011	P	4.6	<5.0	1.7	11	*17.3*	<25	<0.040	<2.5	23.6	<0.090	66	17
	10/16/2012	P	4.8	<7	1.6	4.4	*10.8*	18	<0.04	<5	31.3U	0.1J	100	16
	10/29/2013	P	4.7	2.1	2.2	5.1	*14.1*	28	<0.040	<5.0	40.0	<0.090	120	15
	10/20/2014	P	<7.0	<9.0	2.5	<7.0	*2.5*	<30	<0.04	<10	27.8	<0.4	83	18
	10/20/2015	P	1.6	1.2	0.77J	4.0	7.57	0.85 J	0.033 J	< 1	< 0.6	6.5	6.4J	11
	10/21/2016	P	0.80J	0.75J	0.33J	1.7J	3.58	1.8	<0.10	0.56J	0.44J	1.0	130	8.8
	10/25/2017	P	2.2	1.1	0.94J	3.4	7.64	4.5	<0.016	0.84	5.6J	<1.0H	73	17
ICM-2	12/12/1995	P	<0.5	<1.0	<1.0	2.5	*2.5*	---	---	---	---	---	---	---
	8/2/2000	P	<0.20	<2	<5	<8.2	*ND*	---	<0.030	20	3.1	8.65	26.07	0.6
	1/11/2001	P	<0.20	<1.0	<1.0	<3.0	*ND*	---	<0.030	390	12.4	0.0	43	0.26
	7/24/2001	P	<0.20	<0.20	0.32J	<0.60R	*0.32*	---	<0.040	30.3	2.01	4.69	25	0.18
	1/21/2002	P	<0.20	<0.20	0.45J	<0.60	*0.45*	---	<0.040	71	1.03	0.0	24	0.33
	7/18/2002	P	0.72J	0.49J	0.44J	1J	*2.65*	---	<0.04	2.2J	2.97	0.0	20	2.9
	1/30/2003	P	0.2J	<0.2	<0.2	<0.6	*0.2*	---	<0.04	11	0.22	0.86	11	0.053
	7/24/2003	P	<0.2	<0.2	0.3J	1.7J	*2.0*	---	<0.04	10	1.5	0.27	11	2.2
	2/2/2004	P	<0.2	<0.2	0.2J	0.9J	*1.1*	---	<0.04	7.9	0.36	0.15	16	0.73
ICM-3	12/12/1995	P	17	1.7	1.7	3.2	*23.6*	---	---	---	---	---	---	---
	8/2/2000	P	0.33J	<0.21J	<0.29J	<1.3J	*0.33*	---	2.5	46	---	6.07	64.25	0.62
	1/10/2001	P	1.0	<0.20	<0.20	<0.99	*1.0*	---	<0.030	6.5	0.35	2.03	29	0.66
	7/25/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.040	5.5	2.02	3.93	42	0.77
	3/12/2002	P	1.3	0.22J	<0.20	<0.60	*1.52*	---	<0.040	11.8	2.8	0.51	19	0.57
	7/19/2002	P	3.0	<0.2	<0.2	<0.6	*3.0*	---	<0.04	<1.5	16.6	0.23	57	4.6
	1/31/2003	P	0.42J	<0.2	<0.2	<0.6	*0.42*	---	<0.04	3.8J	0.72	0.32	25	0.086
	7/24/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.28	6.4	3.7	0.54	44	1.5
	2/2/2004	P	0.5J	<0.2	<0.2	<0.6	*0.5*	---	<0.04	4J	1.5	0.06	24	0.53
	7/23/2004	P	0.2J	<0.2	0.5J	<0.6	*0.7*	<0.3	2.9J	25.2J	0.58J	1.92	40	0.9
	7/14/2005	P	0.4J	<0.2	<0.2	<0.6	*0.4*	1.6	0.64	14.6	9.4	<0.09	37J	3.2J
	7/13/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.3J	0.22	11.2	0.6	0.16J	43	0.44J
	7/11/2007	P	0.3J	<0.2	<0.2	<0.6	*0.3*	<1.0	<0.040	10.4	6.7	<0.090	51	2.6J
	7/9/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.6	<0.040	8.3	12.3	<0.090	57	3.0J

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
ICM-3	7/7/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	0.32	8.9	0.34	0.37	19	0.4
	7/13/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	<0.040	<2.5	15.1	<0.090	31	5.8
	7/15/2011	P	<1.0	<0.2	<0.2	<0.6	*ND*	<1.0J	<0.040	<2.5	9.8	<0.090	46	2.4
	10/16/2012	P	0.3J	<0.2	<0.2	<0.6	*0.3*	<0.3	<0.04	8.3	8.7U	<0.09	57	1.5
	10/31/2013	P	0.3 J	<0.2	<0.2	<0.6	*0.3*	2.1	<0.040	<5.0	18.7	<0.090	65	3.3
	10/21/2014	P	6.2	1.3	0.4 J	1.6	*9.5*	<10	<0.04	<5	12.6	<0.4	75	6.9
	10/20/2015	P	1 U	1 U	1 U	2 U	*ND*	1 U	0.24	< 1	17.1	0.12	2J	0.026
	10/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.14J	<0.10	4.22	0.18J	<1.0	63	2.1
	10/25/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	<0.016	5.94	0.10U	<1.0H	70	2.7
ICM-5	12/14/1995	P	1.8	<1.0	<1.0	<2.0	*1.8*	---	---	---	---	---	---	---
	8/3/2000	P	0.8J	1.2	2.1	3.8	*7.9*	---	<0.030	<3.0	26	0.92	76.26	9.39
	1/11/2001	P	0.64J	0.48J	0.78J	0.71J	*2.61*	---	0.12	53	16.2	0.85	91	7.2
	7/25/2001	P	0.71J	0.66J	0.32J	<0.60	*1.69*	---	<0.040	<6.0	27	0.83	82	16
	1/22/2002	D	<0.20	0.28J	<0.20	1.1J	*1.38*	---	<0.040	79	19	---	110	8.0
	1/22/2002	P	<0.20	0.30J	<0.20	1.2J	*1.5*	---	<0.040	83	20	0.0	110	5.7
	7/22/2002	P	0.38J	1.3	<5	1.1J	*2.78*	---	<0.04	<6.0	27.1	0.43	70	15
	1/31/2003	P	<2	0.43J	0.64J	1.5J	*2.57*	---	<0.04	28.6	57.6	0.54	100	17
	7/25/2003	P	5	0.7J	0.7J	2.8J	*9.2*	---	<0.04	<3.0	37.8	0.22	80	13
	2/2/2004	P	3.1	<0.7UJ	0.8J	3J	*6.9*	---	<0.04	3.1J	26.9	0.19	63	15
	7/26/2004	P	1.5	1J	1.4	3.2	*7.1*	35	<0.04	<1.5	30.2	0.71	65	17
	7/14/2005	P	0.3J	<0.2	<0.2	<0.6	*0.3*	2.1	<0.04	<1.5	20.7	<0.09	33J	12J
	7/13/2006	P	1.6	1.2	0.4J	2.0J	*5.2*	69	<0.040	<6.0	19.7	<0.090	37	13J
	10/2/2007	P	1.5	0.5J	0.3J	1.5J	*3.8*	49J	---	---	---	---	---	---
	7/8/2008	P	2.7	<1.0	1.1	2.1	*5.9*	35	<0.040	<5.0	25.3	<0.090	65	18
	7/7/2009	P	0.9	0.7	0.7	<3.0	*2.3*	15	<0.04	<5.0	20	<0.09	44	16
	7/13/2010	P	0.9J	0.7UJ	1.3	2.8J	*5.0*	15	<0.040	<5.0	24	<0.090	41	15
	7/15/2011	P	1.1	0.6	0.6	<5.0	*2.3*	12	<0.040	<5.0	27.5	<0.090	43	14
	10/16/2012	P	1.1	0.3J	1.3	2.3J	*5.0*	6.3	<0.04	<5.0	14.8U	<0.09	86	10
	10/31/2013	P	1.1	0.4 J	1.1	3.0	*5.6*	10	<0.040	6.7	17.6	<0.090	79	10
	10/21/2014	P	<1.0	0.5 J	0.9 J	<3.0	*1.4*	6.4	<0.04	<5	21.6	<0.4	82	11
	10/20/2015	P	0.24J	0.28J	<1.0	<2.0	0.52	4.4	0.048J	< 1	2.04	0.48	13J	4.5
	10/20/2016	P	0.21J	0.30J	<1.0	<2.0	0.51	10	<0.10	0.70	<0.10	<1.0	740	6.9
	10/25/2017	P	0.17J	<0.25	<0.30	<0.28	0.17	14	<0.016	0.81	1.7J	<1.0H	76	18
ICM-6	12/12/1995	P	4000	16000	4200	20000J	*44200*	---	---	---	---	---	---	---
	8/2/2000	P	670	5300	2200	9400	*17570*	---	<0.03	<6	21	0.66	62.42	10.83
	1/10/2001	P	700	7400	1500	8900	*18500*	---	<0.030	<3.0	14.4	0.0	61	6.9
	7/25/2001	P	460	1300	1500	6600	*9860*	---	<0.040	<3.0	18	0.77	68	14
	1/16/2002	P	500	5900	1100	5700	*13200*	---	<0.040	<3.0	15.6	4.49	64	13
	7/19/2002	P	6100	11000	2400	9500	*29000*	---	<0.04	<3	29	0.32	92	18
	1/29/2003	D	3200	4200	700	4800	*12900*	---	<0.04	<1.5	21.1	---	66	15
	1/29/2003	P	3400	4600	740	5000	*13740*	---	<0.04	<3	21.7	0.17	64	16
	7/23/2003	D	3900	6400	2300	8800	*21400*	---	<0.040	<1.5	24.2	---	70	16
	7/23/2003	P	4100	6700	2500	9300	*22600*	---	<0.040	<1.5	25.2	3.6	70	16
	1/21/2004	P	3300	3500	1100	5300	*13200*	---	<0.04	<1.5	14.9	0.19	63	15
	7/23/2004	P	3400	2900	3300	8700	*18300*	67	<0.04J	<3J	25.4J	0.78	80	19
	1/14/2005	D	2600	3100	750	4100	*10550*	190	---	---	---	---	---	---
	1/14/2005	P	2700	3300	820	4300	*11120*	<200	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
ICM-6	7/14/2005	P	2000	520	1200J	4200J	*7920*	<15	<0.04	<1.5	22.3	<0.09	48J	14J
	1/20/2006	P	2000	4200	1200	4600	*12000*	170	---	---	---	---	---	---
	7/14/2006	P	1200	290	1400	2600	*5490*	99	<0.040	<6.0	19	<0.090	47	14J
	1/10/2007	P	1500	2400	1100	3000	*8000*	<500	---	---	---	---	---	---
	7/12/2007	P	700	120	360	670	*1850*	<100	<0.040	<10.0	22.5	---	59J	12J
	1/10/2008	P	1300	3500	1200	4200	*10200*	<200	---	---	---	---	---	---
	7/11/2008	P	900	1900	600	3300	*6700*	<200	<0.040	<5.0	27.1	<0.090	81	17J
	1/6/2009	P	640	440	1100	1600	*3780*	100	---	---	---	---	---	---
	7/7/2009	D	---	---	---	---	---	---	<0.04	<5	24.4	<0.09	---	---
	7/7/2009	P	670	550	1300	2100	*4620*	<100	<0.04	<5	25.7	<0.09	63	19
	1/5/2010	D	460	1100	460	1700	*3720*	190	---	---	---	---	---	---
	1/5/2010	P	470	1100	490	1700	*3760*	200	---	---	---	---	---	---
	7/13/2010	P	680	1400	970	2000	*5050*	150	<0.040	<5.0	29	0.090J	100	18
	1/13/2011	P	410	640	510	1400	*2960*	<100	---	---	---	---	---	---
	7/15/2011	P	400	480	1200	1600	*3680*	<400	<0.040	<5.0	28.3	0.11	60	21
	1/18/2012	D	270	390	470	950	*2080*	130	---	---	---	---	---	---
	1/18/2012	P	270	400	490	990	*2150*	130	---	---	---	---	---	---
	10/18/2012	P	220	70	190	140	*620*	130	<0.04	<2.5	7.4	<0.09	59	15
	1/15/2013	P	190	420	710	1300	*2620*	200	---	---	---	---	---	---
	5/14/2013	P	240	1900	1600	4300	*8040*	<190	---	---	---	---	---	---
	10/31/2013	P	220	470	1700	2300	*4690*	<270	<0.040	<10.0	18.6	<0.090	73	23
	1/15/2013	D	180	340	670	1200	*2390*	190	---	---	---	---	---	---
	1/28/2014	P	130	1300	1300	3200	*5930*	<270	---	---	---	---	---	---
	1/28/2014	D	130	1500	1500	3600	*6730*	< 250	---	---	---	---	---	---
	4/15/2014	P	76	140	250	450	*916*	<22	---	---	---	---	---	---
	10/21/2014	P	170	1100	1700	2900	*5870*	<180	<0.04	<5	25.5	<0.4	98J	24
	4/22/2015	P	110	1,000	930	1,600	3,640	5 U	---	---	---	---	---	---
	10/20/2015	P	70	100	440	150	760	0.70J	0.037J	< 1	< 0.6	11.9	18J	19
	10/20/2016	P	92	160	760	620	1632	3.2	<0.10	0.56J	<0.10	<1.0	130	13
	4/26/2017	P	73	320	370	430	1193	1.3J	---	---	---	---	---	---
	10/25/2017	P	61	150	810	550	1571	1.4J	<0.016	<0.33	24.9J	<1.0H	92	21
ICM-7	12/14/1995	P	110	<10	<10	120	*230*	---	---	---	---	---	---	---
	8/3/2000	P	4.4	0.23J	1.0	1.1J	*6.73*	---	8.4	32.4	0.64	3.78	97.62	1.97
	1/11/2001	P	100	1.3	1.7	2.6J	*105.6*	---	0.4	28.9	5.0	0.0	65	5.3
	7/26/2001	P	75	2.5	9.3	29	*115.8*	---	0.19	<3.0	15	1.81	120	6.0
	1/22/2002	P	45	0.68J	0.57J	0.67J	*46.92*	---	9.39	132	0.6	1.14	65	4.3
	7/19/2002	P	77	2.8	6.6	50	*136.4*	---	<0.04	14	7.5	0.67	89	11
	1/31/2003	P	46	3.3	130	420	*599.3*	---	<0.04	68.9	3.4	0.86	33	6.5
	7/25/2003	P	28	<0.2	36	15	*79*	---	0.73	280	2.0	1.45	51	1.9
	2/2/2004	P	48	6.6J	160	290	*504.6*	---	<0.04	131	3.6	0.0	33	6.6
	7/26/2004	P	1.1	<0.2	2.1	1.8J	*5.0*	<0.3	5.3	73.1	0.039J	8.08	30	0.26
	7/14/2005	P	0.8J	<0.2	<0.2	8.1J	*8.9*	<0.3	3.9	27.1	0.31	<0.09	28J	0.21J
	7/13/2006	P	3.2	0.2J	4.9	7.7	*16*	<0.3	1.3	13.7	2.9	2.53	57	2J
	7/11/2007	P	1.4	0.3J	0.4J	0.8J	*2.9*	330	0.21	3.5J	4.8	1.83	63	5.4J
	7/9/2008	P	1.2	3.1	0.5	7.9	*12.7*	1.2	0.53	7.4	3.2	<0.090	80	4.5J
	7/8/2009	P	0.5	<0.2	3.0	4.2	*7.7*	<1	3.7	68.5	1.6	0.91	77	3.9
	7/14/2010	P	16	1.3	92	160	*269.3*	<20	0.25	16.4	1.8	<0.090	49	1.9

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
ICM-7	7/14/2011	P	16	1.8	65	130	*212.8*	<10	0.17	10.8	6.6	<0.090	67	3.3
	10/16/2012	P	0.6J	<0.2	0.3J	0.8J	*1.7*	1.8	0.99	35	1.8	0.19J	58	2.6
	10/29/2013	P	0.8J	<0.2	1.2	<0.6	*2.0*	4.6	<0.040	295	2.8	0.85	74	0.66
	10/17/2014	P	3.9	0.3J	20	38	*62.2*	<5	2.4	36.7	3.0	<0.4	68	2.4
	10/20/2015	P	3.3	<1.0	2.7	5.9	11.9	1 U	0.16	< 1	8.88	0.14	5.1J	2.0
	10/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.57J	0.74	39.7	<0.10	<1.0	66	1.4
	10/25/2017	P	2.9	<0.25	2.0	7.6	12.5	<0.13	<0.016	9.3	0.10U	<1.0H	69	5.4
ICM-9	12/12/1995	P	2100	55	96	37J	*2288*	---	---	---	---	---	---	---
	8/2/2000	P	860J	<27	<15	<36	*860*	---	<0.030	<6	49	1.86	125.38	10.04
	1/12/2001	P	1100	22	18	20	*1160*	---	0.18	<6.0	56	1.09	150	17
	7/25/2001	P	730	18	2.9	19	*769.9*	---	<0.040	<7.5	41	1.29	150	11
	1/22/2002	P	1000	19	8.9	14	*1041.9*	---	<0.040	<6.0	43	0	120	15
	7/24/2002	P	700	22	13	21	*756*	---	<0.04	<3	40	2.38	160	16
	1/29/2003	P	830	29	26	23	*908*	---	<0.04	<3	41	0.13	100	25
	7/23/2003	P	230	16	12	20	*278*	---	<0.040	<6.0	38.1	3.19	110	10
	2/2/2004	P	450	23	25	18	*516*	---	<0.04	<6	38.7	0.4	98	16
	7/26/2004	P	510	16	12	23J	*561*	27	<0.04	<1.5	26.8	1.24	100	11
	1/13/2005	P	510	22	25	25	*582*	<50	---	---	---	---	---	---
	7/14/2005	P	450J	27J	30J	16J	*523*	<100	<0.04	<3	47.3	<0.09	88J	14J
	1/20/2006	P	530	23	21	14	*588*	96	---	---	---	---	---	---
	7/13/2006	P	450	28	24	38	*540*	56	<0.040	<3.0	31.7	0.84	76	11J
	1/11/2007	P	570	25	22	16	*633*	<100	---	---	---	---	---	---
	7/13/2007	P	290J	23J	27J	11J	*351*	49J	<0.040	<10.0	54	<0.090	160J	17J
	1/10/2008	P	330J	18J	22J	12J	*382*	<100	---	---	---	---	---	---
	7/11/2008	P	260J	11J	13J	13J	*297*	52J	<0.040	<5.0	27.6	<0.090	110	11J
	1/6/2009	P	270	14	11	12	*307*	57	---	---	---	---	---	---
	7/8/2009	P	200	5.9	7.1	9.8	*222.8*	28	<0.04	<2.5	65.4	0.69	640	6.2
	1/5/2010	P	150J	8.7J	8.2J	8.3J	*175.2*	110J	---	---	---	---	---	---
	7/14/2010	P	97	7.7	13	10	*127.7*	<50	<0.040	<5.0	21.8	<0.090	110	8.9
	1/11/2011	P	120J	5.1J	6.9J	14J	*146*	110J	---	---	---	---	---	---
	7/15/2011	P	96	6.5	7.7	12	*122.2*	<100	<0.040	<5.0	22.2	<0.090	85	8.0
	1/19/2012	P	65J	4.8J	5.3J	13J	*88.1*	62J	---	---	---	---	---	---
	10/16/2012	P	33	5.2	4.2	12	*54.4*	61	<0.04	<5	15.3U	3.53	80	9.0
	1/15/2013	P	63 J	5.3 J	7.4 J	13 J	*88.7*	73J	---	---	---	---	---	---
	5/16/2013	P	68 J	3.7 J	7.4 J	10 J	*89.1*	96J	---	---	---	---	---	---
	10/29/2013	P	21 J	4.0 J	5.8 J	9.3 J	*40.1*	110J	<0.040	<2.5	11.4	<0.090	67	8.4
	1/28/2014	P	19J	3.2J	4.7J	9.5J	*36.4*	87J	---	---	---	---	---	---
	4/16/2014	P	21J	<5	3.7J	7.5J	*32.2*	53J	---	---	---	---	---	---
	10/17/2014	P	10	5 U	3.3	6.3	*19.6*	<56	<0.04	<2.5	10.7	<0.4	74	6.4
	4/22/2015	P	25	1.6	4.9	9.7	41.2	1 U	---	---	---	---	---	---
	10/21/2015	P	8.5	2.3	3.8	9.8	24.4	1 U	< 0.10	< 1	1.39	0.21	7.6	7.5
	4/21/2016	P	33	3.0	5.6	11	52.6	1.8	---	---	---	---	---	---
	10/19/2016	P	2.8	1.9	1.6	7.6	13.9	0.89J	<0.10	0.94	0.13J	<1.0	120	5.5
	4/27/2017	P	2.0	1.9	1.9	4.3	10.1	0.75J	---	---	---	---	---	---
	10/24/2017	P	1.5	1.2	0.76J	3.7	7.16	0.75J	<0.016	0.88	0.27J	<1.0H	95	6.7
KM-GP05	8/25/2004	P	9500	1600	2400	10000	*23500*	170	---	---	---	---	---	---
	1/14/2005	P	9700	2800	2300	10000	*24800*	330	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
KM-GP05	4/13/2005	P	10800	2330	1920	9310	*24360*	241	---	---	---	---	---	---
	7/13/2005	P	15000	2300	2900	12000	*32200*	350	<0.04	1.6J	9.1	<0.09	31J	13J
	10/26/2005	P	14000	2700	2900	12000	*31600*	<20	---	---	---	---	---	---
	1/17/2006	P	14000J	2400J	2800J	13000J	*32200*	370J	---	---	---	---	---	---
	7/11/2006	P	14000	1800	3000	13000	*31800*	250	<0.040	<1.5	8.5	0.45	52	28J
	1/9/2007	P	13000J	1800J	3100J	13000J	*30900*	210J	---	---	---	---	---	---
	7/11/2007	P	11000	1400	2900	12000J	*27300*	<500	<0.040	<2.5	9	6.32	320	13
	7/9/2008	P	12000	2600	1200	9500	*25300*	<300	<0.040	<2.5	8.8	<0.090	53	19J
	1/6/2009	D	10000	1500	1000	5300	*17800*	160	---	---	---	---	---	---
	1/6/2009	P	10000	1500	1000	5300	*17800*	160	---	---	---	---	---	---
	7/7/2009	P	10000	690	2300	6900	*19890*	160	<0.04	<2.5	9.8	0.18	47	19
	1/5/2010	P	12000	850	2500	7000	*22350*	<300	---	---	---	---	---	---
	7/13/2010	P	12000	610	2600	6100	*21310*	200	<0.040	<2.5	12.3	0.20J	51	20
	1/11/2011	P	3900	180	920	1600	*6600*	80	---	---	---	---	---	---
	7/13/2011	P	9200	430	1900	3400	*14930*	120	<0.040	<2.5	12.3U	<0.090	42	19
	1/18/2012	P	9700	470	2400	3200	*15770*	150	---	---	---	---	---	---
	10/15/2012	P	4000	160	840	920	*5920*	73	0.076J	<2.5	20.3	0.68	1100	8.0
	1/15/2013	P	11000	340	2300	2000	*15640*	<240	---	---	---	---	---	---
	5/14/2013	P	9600	420	2100	2100	*14220*	<170	---	---	---	---	---	---
	10/29/2013	P	7800	320	1200	1000	*10320*	<210	<0.040	<5.0	12.1 U	<0.090	69	17
	1/28/2014	P	7700	280	1600	1100	*10680*	<240	---	---	---	---	---	---
	4/15/2014	P	7200	250	1300	1100	*9850*	<140	---	---	---	---	---	---
	10/17/2014	P	7600	280	1200	760	*9840*	<150	<0.04	<2.5	23.5	0.81	96	23
	4/21/2015	P	8,400	290	1,300	900	10,890	14 J	---	---	---	---	---	---
	10/20/2015	P	8,500	300	750	370	9,920	19 J	0.037 J	< 1	< 0.6	0.54	13J	12
	4/20/2016	P	8,700	190	<6.0	400	9,020	30	---	---	---	---	---	---
	10/18/2016	P	11,000	290	200	130	11,620	23	0.024J	0.64	<0.10	<1.0	90	10
	4/26/2017	P	7,400	210	210	130	7,950	21	---	---	---	---	---	---
	10/24/2017	P	6,000	210	110	72	6,392	18J	<0.016	<0.33	0.21J	<1.0H	700	7.8
KM-GP13	8/24/2004	P	16000	40000	2600	11000	*69600*	<50	---	---	---	---	---	---
	1/14/2005	D	13000	28000	1400	6300	*48700*	<100	---	---	---	---	---	---
	1/14/2005	P	13000	28000	1500	6600	*49100*	<100	---	---	---	---	---	---
	4/13/2005	P	12200	24600	1660	7820	*46280*	<28	---	---	---	---	---	---
	7/13/2005	P	9800	23000	1600	7100	*41500*	<200	0.28	11.5	61.7	<0.09	91J	7.7J
	10/26/2005	P	540	3300	340	1500	*5680*	85	---	---	---	---	---	---
	1/19/2006	P	820J	3100J	2.3J	2200J	*6122.3*	<50J	---	---	---	---	---	---
	7/11/2006	P	3300	8200	750	3400	*15650*	<15	<0.040	3.4J	63.2	0.39J	1000	4.0J
	1/9/2007	P	1300	3200	530	2200	*7230*	<200	---	---	---	---	---	---
	7/11/2007	P	1000	3800	610	2600J	*8010*	<200	<0.040	10.3J	52.7	2.91	1000	3.6J
	1/8/2008	P	960	3500	580	2400	*7440*	<200	---	---	---	---	---	---
	7/9/2008	P	2900	700	7000	3100	*13700*	<100	<0.040	<2.5	63	<0.090	280	7.4J
	1/22/2009	P	1700	550	2900	2100	*7250*	80	---	---	---	---	---	---
	7/7/2009	P	1700	3400	470	2000	*7570*	<50	<0.04	<5	58.3	0.09	970	8.3
	1/5/2010	P	3300	6800	770	3400	*14270*	<2000	---	---	---	---	---	---
	7/13/2010	P	780	1100	280	1200	*3360*	<30	0.045J	<25.0	94.5	<0.090	1100	2.6
	4/5/2011	P	1900	4000	640	3200	*9740*	28J	---	---	---	---	---	---
	7/13/2011	P	3200	7600	1200	5100	*17100*	<1000	<0.040	<10.0	49.8	<0.090	85	18

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
KM-GP13	1/18/2012	P	1100	2700	470	1800	*6070*	81	---	---	---	---	---	---
	10/15/2012	P	2500	3800	630	2600	*9530*	71	0.12	<2.5	51.3	0.46	520	13
	1/15/2013	P	550	1100	290	1000	*2940*	<84	---	---	---	---	---	---
	5/14/2013	P	1300	2300	530	2100	*6230*	<78	---	---	---	---	---	---
	10/29/2013	P	1400	3200	880	3600	*9080*	<250	<0.040	<10.0	44.7	---	110	12
	1/28/2014	P	240	400	110	370	*1120*	<26	---	---	---	---	---	---
	4/15/2014	P	120	230	120	310	*780*	<21	---	---	---	---	---	---
	10/17/2014	P	700	1300	540	1700	*4240*	<130	R	<2.5	58.8	<0.4	100	17
	4/21/2015	P	250J	280J	250J	670J	1,450	0.17J	---	---	---	---	---	---
	10/20/2015	P	290	270	200	360	1120	0.26J	< 0.10	1.8	5.82	1.6	29J	1.9
	4/20/2016	P	430	72	<20	450	952	0.55J	---	---	---	---	---	---
	10/18/2016	P	780	430	180	650	2070	0.74J	<0.10	0.6	63.0J	<1.0	1,600	0.033
	4/25/2017	P	190	160	170	340	860	0.21J	---	---	---	---	---	---
	10/24/2017	P	770	560	300	790	2420	0.39J	<0.016	0.84	34.7J	<1.0H	700	7.8
L-2	1/22/2002	P	<0.20	28	<0.20	1.8J	*29.8*	---	<0.040	<6.0	53	1.68	130	7.9
	7/24/2002	P	<0.2	<1	0.35J	0.76J	*1.11*	---	<0.04	<3	47	2.9	150	7.9
	1/29/2003	P	2.9	<2	<0.2	<3	*2.9*	2.6	<0.04	<3	44	0.58	92	4.6
	8/21/2003	P	<1	<0.2	0.2J	0.9J	*1.1*	2.6	---	---	---	0.2	---	---
	2/3/2004	P	2.9	<0.2	<0.2	0.9J	*3.8*	<2U	<0.2	<6	37.9	0.35	95	5.4
	4/16/2004	D	<0.2	0.3J	0.2J	1J	*1.5*	1.4	---	---	---	---	---	---
	4/16/2004	P	<0.2	0.3J	<0.2	0.9J	*1.2*	1.5	---	---	---	---	---	---
	7/22/2004	P	6.5J	0.2J	<0.2R	0.8J	*7.5*	3.9J	<0.04J	<3	45.6	0.6	120J	6.3J
	10/5/2004	P	6.8	0.2J	<0.2	0.9J	*7.9*	2.8	---	---	---	---	---	---
	1/11/2005	P	4.9	<0.2	<0.2	<0.6	*4.9*	1.7	---	---	---	---	---	---
	4/12/2005	P	<0.31	<0.14	<0.27	<0.17	*ND*	1.5	---	---	---	---	---	---
	7/12/2005	P	2.7	0.8J	<0.6	<0.6	*3.5*	4.2	<0.04	<3	42.7	<0.09	84J	5.1J
	10/26/2005	P	2.3	<1	<0.2	0.7J	*3.0*	3.5	---	---	---	---	---	---
	1/17/2006	P	2.5	<1	<0.2	<0.6	*2.5*	2.1	---	---	---	---	---	---
	7/11/2006	P	2.0	<0.2	<0.2	<0.6	*2.0*	2.7	<0.040	<3.0	34.9	0.10J	72	3.7J
	1/11/2007	P	2.3	<2.0	0.3J	1J	*3.6*	1.2	---	---	---	---	---	---
	7/10/2007	P	3.1	<1.0	<0.2U	0.8J	*3.9*	2.5	<0.040	<10.0	40.1	<0.090	88	5.7J
	1/8/2008	P	2.8	<1.0	<0.2	<0.6	*2.8*	1.1	---	---	---	---	---	---
	7/10/2008	P	2.5	<0.2	0.3	0.7	*3.5*	1.2	<0.040	<5.0	33.3	<0.090	230	5.7
	1/7/2009	P	2.8	<0.2	0.8	<0.6	*3.6*	1.0	---	---	---	---	---	---
	7/8/2009	P	4.1	<1	<0.2	<0.6	*4.1*	<1	<0.04	<10	37.3	<0.09	70	5.3
	1/6/2010	P	2.9	<1.0	<0.2	0.8J	*3.7*	<1.0	---	---	---	---	---	---
	7/14/2010	P	4.4	<1.0	0.2J	0.8J	*5.4*	<5.0	<0.040	<10.0	53.4	<0.090	87	4.0
	1/13/2011	P	3.4	<5.0	<0.2	1.3	*4.7*	<1.0	---	---	---	---	---	---
	7/13/2011	P	<5.0	<2.0	0.2	0.7	*0.9*	<2.0	<0.040	<10.0	58.1U	<0.090	97	1.7
	1/19/2012	P	0.3J	0.4J	<0.2	<0.6	*0.7*	1.3	---	---	---	---	---	---
	10/17/2012	P	1.1	<0.2	<0.2	<0.6	*1.1*	0.5J	<0.04	<5	34.1	0.45	1400	0.14
	1/16/2013	P	0.4J	<1.0	0.2J	<0.6	*0.6*	2.2	---	---	---	---	---	---
	5/15/2013	P	3.3	<1.0	<0.2	<3.0	*3.3*	<2.0	---	---	---	---	---	---
	10/30/2013	P	6.0	0.5 J	0.3 J	0.9J	*7.7*	3.2	<0.040	<10.0	38.5	<0.090	92	3.1
	1/29/2014	P	3.3	<1.0	<0.2	0.8J	*4.1*	2.5	---	---	---	---	---	---
	4/16/2014	P	<3.0	<0.2	0.3 J	0.9J	*1.2*	1.7	---	---	---	---	---	---
	10/20/2014	P	<5.0	<0.2	0.4 J	<2.0	*0.4*	3.3	<0.04	<10	47.3	<0.4	100	2.1

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
L-2	4/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.48J	---	---	---	---	---	---
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1.7	< 0.10	< 1	0.32J	17.5	14	1.2
	4/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.51J	---	---	---	---	---	---
	10/19/2016	P	0.15J	<1.0	<1.0	<2.0	0.15	0.78J	<0.10	0.54J	<0.10	<1.0	130	2.0
	4/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	0.39J	---	---	---	---	---	---
	10/25/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	1.1	<0.016	<0.33	4.5J	<1.0H	45	1.9
L-8	4/16/2004	P	7.1	0.7J	3.0	2.9J	*13.7*	0.9J	---	---	---	---	---	---
	7/22/2004	P	24J	2.2J	31J	8.5J	*65.7*	60J	<0.04J	<3	17.1	0.63	48J	5.3J
	10/6/2004	P	71J	2J	4.8J	4J	*81.8*	29J	---	---	---	---	---	---
	1/12/2005	P	45	1.5	15	2.5J	*64*	<5	---	---	---	---	---	---
	4/12/2005	P	12.6	0.86J	8.6	2.3	*24.36*	<0.28	---	---	---	---	---	---
	7/12/2005	P	18	1.8	15	3.3	*38.1*	<20	<0.04	<7.5	23.5	0.52	38J	1.9J
	10/26/2005	P	75	1.1	1.2	1.6J	*78.9*	24	---	---	---	---	---	---
	1/17/2006	P	36	<1	2.7	1.7J	*40.4*	5.1	---	---	---	---	---	---
	7/12/2006	P	<200	5.5	47	6.0	*58.5*	25	<0.040	<6.0	25.9	0.11J	48	8.7J
	1/9/2007	P	8.5	0.5J	<0.2	<0.6	*9.0*	4.5J	---	---	---	---	---	---
	7/13/2007	P	64	2	1.6	3.4	*71*	7.8	<0.040	<10.0	14.7	7.4	75J	4.3J
	1/8/2008	P	15	0.5J	0.5J	0.8J	*16.8*	11	---	---	---	---	---	---
	7/10/2008	P	110	1.6	2.4	4.1	*118.1*	11	<0.040	<5.0	16.7	<0.090	33	3.3
	1/7/2009	P	11	<0.2	<0.2	<0.6	*11*	2.0	---	---	---	---	---	---
	7/8/2009	P	96	1.5	0.7	<3	*98.2*	<5	<0.04	<5	12.6	<0.09	20	3.0
	1/6/2010	P	0.5J	<0.2	<0.2	<0.6	*0.5*	2.2	---	---	---	---	---	---
	7/14/2010	P	69	2.3	1.1	2.7J	*75.1*	<20	<0.040	<5.0	11.1	<0.090	21	2.0
	1/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.6	---	---	---	---	---	---
	7/14/2011	P	61	0.4	0.3	<1.0	*61.7*	<10	<0.040	<10.0	18.4	<0.090	19	1.6
	1/19/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	10/17/2012	P	69	3.7	5.9	9.8	*88.4*	33	<0.04	<5	21.1	<0.09	130	2.5
	1/16/2013	P	12	0.4J	0.8J	1.2J	*14.4*	5.4	---	---	---	---	---	---
	5/15/2013	P	15	<0.2	0.8J	<0.6	*15.8*	1.5	---	---	---	---	---	---
	11/1/2013	P	22	0.9J	0.4J	1.7J	*25*	<13	<0.040	24.9	15.6 U	<0.090	120	0.35
	1/29/2014	P	21	<0.2	0.4J	0.5J	*21.9*	1.6	---	---	---	---	---	---
	4/16/2014	P	530	5.9	9.9	9.9	*555.7*	<37	---	---	---	---	---	---
	10/24/2014	P	92	2.4	1.4	2.9	*98.7*	<30	<0.04	<2.5	8.1	<0.4	59	1.3
	4/23/2015	P	19	1 U	1.2	2 U	20.2	0.2 J	---	---	---	---	---	---
	10/22/2015	P	40	0.91J	<1.0	0.48J	41.39	2.9	< 0.1	< 1	16.3	0.15	50J	0.46
	4/21/2016	P	1.1	<1.0	<1.0	<2.0	1.1	<1.0	---	---	---	---	---	---
	10/19/2016	P	6.5	0.27J	<1.0	0.71J	7.48	2.5	0.023J	4.91	<0.10	1.0	35	1.3
	4/27/2017	P	7.7	<0.25	<0.30	<0.28	7.7	0.20J	---	---	---	---	---	---
	10/25/2017	P	19	0.34J	<0.30	0.48J	19.82	<0.13	<0.016	1.38	0.10U	<1.0H	45	1.9
L-14	3/24/1997	P	<0.5	<1	<1	2.6	*2.6*	---	---	---	---	---	---	---
	8/2/2000	P	0.29J	<0.34	<0.59	<4	*0.29*	---	<0.030	<3	<0.60	1.47	56.98	2.16
	7/26/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.040	<3.0	16	0.71	51	2.9
	1/18/2002	P	<0.20	0.20J	<0.20	2.0J	*2.2*	---	<0.040	<3.0	34	0.0	66	5.8
	7/24/2002	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	<0.04	20	29.1	2.93	110	5.7
	7/24/2003	P	1.0	3.6	4.3	19	*27.9*	---	<0.04	<3	17.4	2.56	58	4.5
L-20	8/21/2003	P	1.7	<0.2	<0.2	<0.6	*1.7*	8.7	---	---	---	---	---	---
	2/3/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.5UJ	<0.2	8.8	0.12	4.42	11	0.0022J

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
L-20	4/12/2005	P	0.85J	<0.14	<0.27	<0.17	*0.85*	19.5	---	---	---	---	---	---
	7/12/2005	P	1.6	<0.2	<0.2	<0.6	*1.6*	66	<0.04	7.1J	5.7	0.99	42J	<0.002
	1/19/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/8/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.8	---	---	---	---	---	---
L-27	4/16/2004	P	<0.2	0.3J	1.9	1J	*3.2*	30	---	---	---	---	---	---
	7/26/2004	P	<5	1J	15	16	*32*	89	<0.04	<3.8U	8.1	1.25	60	1.7
	10/6/2004	P	12	1.4	6.5	6.3	*26.2*	100	---	---	---	---	---	---
	1/11/2005	P	8.9	1.2	11	10	*31.1*	75	---	---	---	---	---	---
	10/27/2005	P	7.0	0.6J	0.9J	1.0J	*9.5*	55	---	---	---	---	---	---
	4/12/2006	P	0.7J	<0.3U	0.7J	<1.0U	*1.4*	21	---	---	---	---	---	---
	7/11/2006	P	<5.0	<0.2	1.9	1.3J	*3.2*	51	<0.040	6.7	4.6	1.03	36	0.59J
	10/10/2006	P	2.7	0.7J	1.9	2.9J	*8.2*	76	---	---	---	---	---	---
	1/9/2007	P	2.0	0.6J	0.2J	<0.6	*2.8*	50J	---	---	---	---	---	---
	4/3/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	14	---	---	---	---	---	---
	7/11/2007	P	8.0	0.4J	0.5J	0.9J	*9.8*	36	<0.040	9.6	4.6	<0.090	36	0.9J
	10/3/2007	P	29	2.9	7.6	43	*82.5*	82J	---	---	---	---	---	---
	1/8/2008	P	0.5J	<0.2	0.3J	<0.6	*0.8*	24	---	---	---	---	---	---
	4/8/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	9.0	---	---	---	---	---	---
	7/8/2008	P	1.6	0.4	0.4	<3.0	*2.4*	36	<0.040	13.9	11.7	0.31	450	0.52
	10/7/2008	P	3.5	1.4	1.0	2.2	*8.1*	55	---	---	---	---	---	---
	1/7/2009	P	0.8	<0.2	<0.2	<0.6	*0.8*	10	---	---	---	---	---	---
	4/7/2009	P	0.2	0.2	<0.2	<0.6	*0.4*	9.4	---	---	---	---	---	---
	7/9/2009	P	2.0	0.6	0.3	0.6	*3.5*	40	<0.04	16.3	12.3	<0.09	85	0.27
	10/6/2009	P	4.3	0.7	0.5J	0.9	*6.4*	62	---	---	---	---	---	---
	1/6/2010	P	0.3J	<0.2	<0.2	<0.6	*0.3*	10	---	---	---	---	---	---
	4/6/2010	P	1.5	<0.2	<0.2	<0.6	*1.5*	5.3	---	---	---	---	---	---
	7/15/2010	P	9.5	0.4J	0.5J	1.0J	*11.4*	25	<0.040	6.3	8.1	<0.090	30	0.74
	10/5/2010	P	5.3	1.0	0.7J	1.3J	*8.3*	36	---	---	---	---	---	---
	1/11/2011	P	0.6	0.3	<0.2	1.2	*2.1*	2.1	---	---	---	---	---	---
	4/5/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.8	---	---	---	---	---	---
	7/14/2011	P	2.6	0.4	0.3	<1.0	*3.3*	24	<0.040	10.3	11.7	0.09	34	0.31
	10/25/2011	P	7.2	2.6	1.3	4.4	*15.5*	46	---	---	---	---	---	---
	1/19/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	2	---	---	---	---	---	---
	4/10/2012	P	<1.0	0.5J	<0.2	<0.6	*0.5*	5.4	---	---	---	---	---	---
	7/20/2012	P	1.6	0.3J	0.6J	<3	*2.5*	24	---	---	---	---	---	---
	10/17/2012	P	0.3J	<0.2	0.3J	<0.6	*0.6*	27	<0.04	13.1	0.22	0.51	44	0.042
	1/16/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.3	---	---	---	---	---	---
	5/15/2013	P	2.3	0.4 J	0.5 J	0.7 J	*3.9*	15	---	---	---	---	---	---
	7/23/2013	P	5.7	1.1	1.2	1.4 J	*9.4*	47	---	---	---	---	---	---
	11/1/2013	P	0.8J	<0.2	0.3 J	<3.0	*1.1*	30	<0.040	14.8	0.53	0.82	46	0.09
	1/30/2014	P	0.5J	<0.2	<0.2	0.3 J	*0.8*	2.7	---	---	---	---	---	---
	4/16/2014	P	0.4J	<0.2	<0.2	<0.2	*0.4*	0.5 J	---	---	---	---	---	---
	7/23/2014	P	2.5	0.5 J	0.4 J	<1	*3.4*	23	---	---	---	---	---	---
	10/23/2014	P	<4.0	0.9 J	0.7 J	<2	*1.6*	43	<0.04	12.1	8.7	<0.4	52	0.39
	2/3/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1.1	---	---	---	---	---	---
	4/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1.0	---	---	---	---	---	---
	7/21/2015	P	0.19J	<1.0	<1.0	<2.0	0.19	13	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
L-27	10/22/2015	P	0.1J	<1.0	<1.0	<2.0	0.1	20	< 0.1	1.7	14.9	0.1 J	5.5J	0.075J
	1/19/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.2J	---	---	---	---	---	---
	4/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.81J	---	---	---	---	---	---
	7/21/2016	P	0.22J	<1.0	<1.0	<2.0	*ND*	9.5	---	---	---	---	---	---
	10/61/16	P	0.86J	0.73J	<1.0	0.47J	2.06	24	0.019J	12.1	0.13J	<1.0	140	0.68
	1/19/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	0.52J	---	---	---	---	---	---
	4/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	2.4	---	---	---	---	---	---
	7/26/2017	P	0.21J	<0.25	<0.30	<0.28	0.21	14	---	---	---	---	---	---
	10/26/2017	P	0.51J	0.59J	<0.30	0.79J	1.89	34	<0.016	10.8	1.5J	<1.0H	50	0.43
L-34	1/29/2003	P	<0.2	0.39J	0.24J	0.83J	*1.46*	0.31J	0.059J	15.5	<0.006	5.44	23	<0.002
	7/23/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.5J	<0.040	14.2	0.047J	1.7	48	0.0078
	2/3/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	0.39	9.3	0.017J	1.26	31	<0.002
	4/16/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/22/2004	P	<0.2R	<0.2R	<0.2R	<0.6R	*ND*	<0.3R	0.15J	<7.7U	<0.008	0.94	27J	<0.002R
	10/6/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	1/11/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/12/2005	P	<0.31	<0.14	<0.27	<0.17	*ND*	<0.28	---	---	---	---	---	---
	7/12/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.3J	<0.04	4.2J	<0.008	1.6	22J	0.0024J
	10/26/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	1/17/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/11/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/11/2006	P	<0.2	<0.2	0.2J	<0.6	*0.2*	<0.3	<0.040	7.7	<0.0080	1.92	25	<0.0062UJ
	10/10/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	1/9/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/3/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.5J	---	---	---	---	---	---
	7/11/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.1	<0.040	8.1	0.0099J	5.22	24	<0.01UJ
	10/3/2007	P	7.9	0.6J	1.2	<3.0	*9.7*	0.9J	---	---	---	---	---	---
	1/8/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/8/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	<0.040	5.6	0.0081	---	47	0.038
	10/7/2008	P	<0.2	0.4	<0.2	<0.6	*0.4*	<0.3	---	---	---	---	---	---
	1/7/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/7/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/8/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	<0.04	8.1	<0.01	5.45	27	0.016
	10/6/2009	P	<0.2	0.4	<0.2	<0.6	*0.4*	<0.3	---	---	---	---	---	---
	1/6/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/6/2010	P	1.0J	<0.2	<0.2	<0.6	*1.0*	<0.3	---	---	---	---	---	---
	7/14/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	<0.040	4.3J	0.075J	4.21	23	0.022J
	10/5/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	1/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/5/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	0.044	8.2	0.064UJ	1.94	310	<0.01
	10/25/2011	P	<0.2	0.5	0.4	1.4	*2.3*	<0.3	---	---	---	---	---	---
	1/19/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	4/10/2012	P	<0.2	0.7J	<0.2	<0.6	*0.7*	<0.3	---	---	---	---	---	---
	7/20/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	10/17/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	0.07J	<5	<0.01	2.77	24	0.0085J
	1/16/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
L-34	5/15/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/23/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	11/1/2013	P	<0.2	<0.2	0.3 J	<0.6	*0.3*	<0.3	<0.040	3.3 J	<0.010	2.88	28	0.0072
	1/29/2014	P	0.3 J	<0.2	<0.2	<0.2	*0.3*	<0.3	---	---	---	---	---	---
	4/16/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	---	---	---	---	---	---
	7/23/2014	P	<0.2	<0.2	<0.2	0.2 J	*0.2*	<0.3	---	---	---	---	---	---
	10/23/2014	P	<0.2	<0.2	0.2 J	0.4 J	*0.6*	<0.3	<0.04	7.8	0.9	1.9	36	0.019
	2/3/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1	---	---	---	---	---	---
	4/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	---	---	---	---	---	---
	7/21/2014	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	---	---	---	---	---	---
	10/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	0.16	4.5	6.76	0.1J	2.4J	0.005 U
	1/19/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	---	---	---	---	---	---
	4/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	---	---	---	---	---	---
	7/21/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	---	---	---	---	---	---
	10/19/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	0.04J	5.7	0.10J	1.1	95	0.016
	1/19/2017	P	0.18J	3.0	1.9	13	18.08	<0.13	---	---	---	---	---	---
	4/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
	7/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	1.0U	0.18	4.48	0.0087UJ	2.2H	49	0.004J
MH-1/1R	3/24/1997	P	<0.5	<1.0	<1.0	<2.0	*ND*	---	---	---	---	---	---	---
	7/27/2000	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.030	7.3J	<0.0060	0.79	79.7	0.77
	1/8/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.030	9.9	13.3	0.45	72	0.21
	7/20/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.040	8.3J	39.9	0	70	0.42
	1/16/2002	P	<0.20	0.21J	<0.20	<0.60	*0.21*	---	<0.040	7.2J	19	2.56	88	0.52
	7/23/2002	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	<0.04	7.4J	22	1.37	96	0.85
	1/30/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	<0.04	6.6J	22.2	0.12	84	0.62
	7/28/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	<0.04	17.6	23.5	0.75	170	0.22
	1/21/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	<0.04	9.3J	23.7	0.14	100	0.53
	7/26/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	68	<0.04	14.7	23	0.5	100	0.41
	7/12/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	73	<0.04	10.6J	23.9	0.49	77J	0.28J
	7/13/2006	P	<0.2	<0.2	<0.2	0.7J	*0.7*	76	<0.040	14.3J	18.3	0.56	84	0.21J
	7/12/2007	P	<1.0	<0.2	<0.2	<0.6	*ND*	75	<0.040	10.6J	22	<0.090	110J	0.31J
	7/11/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	89	<0.040	21	20.6	0.25	110	0.25J
	7/8/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	110	<0.04	15.5	18.2	0.25	91	0.26
	7/14/2010	P	<0.2	<0.2	0.4J	<0.6	*0.4*	110	<0.040	18.6	18.3	0.28J	71	0.13
	7/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	110	<0.040	<10.0	17.5	0.54	71	0.13
	10/30/2013	P	<0.2	<0.2	0.3 J	<0.6	*0.3*	130	<0.040	16.4	15.1	0.51	84	0.14
	10/20/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	110	<0.04	15.1	17.7	1.12	100	0.19
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	61	0.022 J	< 1	18.4	4.6	11	0.18
	10/19/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	2.6	0.41J	138	<0.10J	1.1	49	0.064
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	25	<0.016	17.4	0.10U	<1.0H	120	0.22
MW-103	1/29/2003	P	180	2000	2500	12000	*16680*	<200	<0.04	12.6	5.0	0.91	41	1.3
	7/23/2003	P	31	170	610	2600	*3411*	<10	<0.040	4.9J	6.3	3.7	33	1.6
	2/3/2004	P	10	53	330	1400	*1793*	<5	<0.04	4.2J	5.5	0.2	36	1.9
	4/16/2004	P	7.9	73	370	1200	*1650.9*	<1.5	---	---	---	---	---	---
	7/22/2004	P	4.3J	9.9J	180J	430J	*624.2*	21J	<0.04J	<5.9U	4.0	0.72	38J	0.82J
	10/5/2004	P	4.8J	14	160	350	*528.8*	<5	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-103	1/13/2005	P	2.5	10	78	220	*310.5*	<5	---	---	---	---	---	---
	4/12/2005	P	6.4	173	163	579	*921.4*	<0.28	---	---	---	---	---	---
	7/11/2005	P	33	750	800	3100	*4683*	<20	<0.04	<1.5	6.1	0.64	26J	3J
	10/24/2005	P	<5	36	420	2800	*3256*	<10	---	---	---	---	---	---
	1/18/2006	P	<5	21	6.0	110	*137*	<1	---	---	---	---	---	---
	4/11/2006	P	3.7	110	130	480	*723.7*	10	---	---	---	---	---	---
	7/11/2006	P	3.1	2.3	41	41	*87.4*	4.7	<0.040	<1.5	4.1	1.12	29	0.41J
	10/10/2006	P	22	740	660	2700	*4122*	<120	---	---	---	---	---	---
	1/9/2007	P	8.3	31	380	1800	*2219.3*	<50	---	---	---	---	---	---
	4/3/2007	P	7.0	29	51	430	*517*	<50	---	---	---	---	---	---
	7/10/2007	P	32	920	500	2100	*3552*	<100	<0.040	<2.5	7.0	0.34J	33	4.5J
	10/3/2007	P	25	580	480	1600	*2685*	25J	---	---	---	---	---	---
	1/10/2008	P	3.0	29	35	110	*177*	<5.0	---	---	---	---	---	---
	4/8/2008	P	0.4	1.5	0.5	1.9J	*4.3*	0.8	---	---	---	---	---	---
	7/8/2008	D	---	---	---	---	---	---	<0.040	<2.5	6.7	0.17	---	---
	7/8/2008	P	33	680	770	2400	*3883*	<50	<0.040	<2.5	6.8	0.3	30	8.4
	10/7/2008	P	4.1	48	74	160	*286.1*	<20	---	---	---	---	---	---
	1/7/2009	P	0.4	9.7	18	38	*66.1*	0.5	---	---	---	---	---	---
	4/7/2009	D	21J	76J	29J	140J	*266*	17J	---	---	---	---	---	---
	4/7/2009	P	29J	710J	250J	1100J	*2089*	40J	---	---	---	---	---	---
	7/8/2009	P	8.2	880	310	1400	*2598.2*	<20	<0.04	<2.5	4.2	0.82	22	3.0
	10/6/2009	D	68	2700	1200	4700	*8668*	<100	---	---	---	---	---	---
	10/6/2009	P	70	2900	1300	5100	*9370*	<120	---	---	---	---	---	---
	1/6/2010	P	2.6	91	56	200	*349.6*	<5.0	---	---	---	---	---	---
	4/6/2010	D	2.6	250	98	310	*660.6*	12	---	---	---	---	---	---
	4/6/2010	P	2.9	230	99	350	*681.9*	14	---	---	---	---	---	---
	7/14/2010	D	---	---	---	---	---	---	<0.040	<2.5	13.4J	0.31J	---	---
	7/14/2010	P	39	2200	1600	5400	*9239*	<200	<0.040	<5.0	14	0.26J	34	18
	10/5/2010	P	1.9	44	37	140	*222.9*	<50	---	---	---	---	---	---
	1/11/2011	P	25	140	130	370	*665*	31	---	---	---	---	---	---
	4/5/2011	D	0.9	180	95J	420	*695.9*	1.1J	---	---	---	---	---	---
	4/5/2011	P	1.3	240	130J	550	*921.3*	<10J	---	---	---	---	---	---
	7/14/2011	D	18	690	380	1500	*2588*	<150	<0.040	<2.5	6.5	0.73	19	6.1J
	7/14/2011	P	23	800	470	1800	*3093*	<150	<0.040	<2.5	6.8	0.65	19	8.3J
	10/25/2011	P	2.0	170	87	360	*619*	<13	---	---	---	---	---	---
	1/19/2012	P	5.1	250	170	550	*975.1*	<22	---	---	---	---	---	---
	4/10/2012	D	21	49	170	300	*540*	36	---	---	---	---	---	---
	4/10/2012	P	21	51	160	240	*472*	27	---	---	---	---	---	---
	7/20/2012	P	3.9	270	150	590	*1013.9*	30	---	---	---	---	---	---
	10/17/2012	D	13	520	400	1400	*2333*	52	<0.04	<2.5	3.6	0.8	28	6
	10/17/2012	P	12	450	350	1200	*2012*	47	0.049J	<2.5	3.7	0.98	27	5.3
	1/16/2013	P	1.8	37	51	180	*269.8*	14	---	---	---	---	---	---
	5/16/2013	P	2.1	5.2	26	97	*130.3*	12	---	---	---	---	---	---
	7/23/2013	P	2	18	30	82	*132*	15	---	---	---	---	---	---
	11/1/2013	P	38	1500	1200	3800	*6538*	<180	<0.040	<2.5	14.2	0.45	46	19
	11/1/2013	D	37	1400	1100	3300	*5837*	<170	<0.040	<2.5	13.4 U	0.77	45	21
	5/16/2013	D	2.1	6.6	28	100	*136.7*	12	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-103	7/23/2013	D	1.9	16	26	72	*115.9*	16	---	---	---	---	---	---
	1/30/2014	P	5.1	150	160	560	*875.1*	<29	---	---	---	---	---	---
	4/16/2014	P	0.7 J	0.6 J	3.8	11	*16.1*	<3	---	---	---	---	---	---
	4/16/2014	D	0.7 J	0.7 J	3.8	11	*14.8*	< 3	---	---	---	---	---	---
	7/23/2014	P	1.9	52	64	250	*367.9*	<18	---	---	---	---	---	---
	7/23/2014	D	2.1	52	65	260	*379.1*	< 19	---	---	---	---	---	---
	10/23/2014	P	23	730	560	1900	*3213*	<79	<0.04	<2.5	10.8	0.42	34	12
	10/23/2014	D	25	870	640	2200	*3735*	< 93	< 0.04	< 5	10.6	< 0.4	37	12
	1/30/2015	P	2.7J	85	120	420	627.7	0.2	---	---	---	---	---	---
	4/22/2015	P	0.84J	140	150	620	910.84	2 U	---	---	---	---	---	---
	7/21/2015	P	0.18J	53	110	440	603.18	1 U	---	---	---	---	---	---
	10/22/2015	P	0.57J	68	140	490	698.57	2 U	< 0.1	< 1	< 0.6	0.08 J	2.9J	1.8
	1/19/2016	P	5.1J	77	170	560	812.1	0.27J	---	---	---	---	---	---
	1/19/2016	D	3.0J	78	170	570	821	0.24J	---	---	---	---	---	---
	4/22/2016	P	1.1	13	2.9	98	141.1	0.2J	---	---	---	---	---	---
	4/22/2016	D	1.6	17	31	100	149.6	0.23J	---	---	---	---	---	---
	7/21/2016	P	0.14J	6.8	14	47	67.94	0.14J	---	---	---	---	---	---
	10/19/2016	P	45	180	330	930	1485	<1.0	0.083J	0.80	0.21J	<1.0	61	8.1J
	10/19/2016	D	45	200	360	1000	1605	<1.0	<0.10J	0.82	0.21J	<1.0	64	13J
	1/20/2017	P	2.6	41	92	310	446	0.28J	---	---	---	---	---	---
	1/20/2017	D	2.6	39	88	290	420	0.38J	---	---	---	---	---	---
	4/27/2017	P	0.53J	11	53	170	234.53	0.35J	---	---	---	---	---	---
	4/27/2017	D	0.58J	13	58	190	261.58	0.37J	---	---	---	---	---	---
	7/27/2017	P	<0.09	19	44	150	213	<0.13	---	---	---	---	---	---
	7/27/2017	D	<0.09	20	44	150	214	<0.13	---	---	---	---	---	---
	10/27/2017	P	8.6	36J	66J	180J	290.6	<0.13	<0.016	0.94	0.0087UJ	<1.0H	35	4.7
	10/27/2017	D	9.3	54UJ	100UJ	270UJ	9.3	<0.13	<0.016	0.93	0.10U	<1.0	30	5.0
MW-107	6/2/2004	P	<0.2	<0.2	<0.2	0.8J	*0.8*	52	---	---	---	---	---	---
	7/21/2004	P	<0.2	<0.2	<0.2	0.8J	*0.8*	54	0.17	3.7J	0.18	1.96	130	0.11
	10/5/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	41	---	---	---	---	---	---
	1/13/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	44	---	---	---	---	---	---
	7/12/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	40	<0.04	3.3J	0.08J	0.45	91J	0.061J
	1/20/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	25	---	---	---	---	---	---
	7/14/2006	P	<0.2	<0.2	<0.2	1.0J	*1.0*	28	0.35	3.3J	0.017J	0.79	110	0.066J
	7/12/2007	P	<1.0	<0.2	<0.2	<0.6	*ND*	17	<2.0	3.8J	0.012J	6.55	110J	0.047J
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	7.0	<1.0	<2.5	<0.0080	1.1	960	0.016UJ
	7/8/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	8.3	1.3	<2.5	0.018	2.09	130	<0.01
	7/14/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	8.7	0.11	<2.5	<0.010	2.62	190	<0.01
	4/6/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	5.1J	---	---	---	---	---	---
	7/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	7.4	0.59	<2.5	0.063UJ	2.22	94	0.017U
	10/18/2012	P	<0.2	<0.2	0.3J	<0.6	*0.3*	8.1	0.13	<2.5	0.019UJ	1.23	100	0.064
	11/5/2013	P	<0.2	<0.2	0.3J	<0.6	*0.3*	4.4	0.33	<2.5	0.075 J	0.79	110	0.075
	10/24/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	4.1	0.33	<2.5	0.078	1.49	100	0.051
	10/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	3.2	0.41J	3.1	<6	0.1J	6.8J	0.042J
	10/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	3.0	0.13	1.81	<0.10J	1.4	110	0.059
	10/27/2017	P	0.18J	<0.25	<0.36	<0.28	0.18	1.8	0.89	3.0	0.0087UJ	2.6H	130	0.03

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-109	6/2/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	18	---	---	---	---	---	---
	7/21/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	7.6	<0.04	45	55.7	1.85	540	0.4
	10/5/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	4.1	---	---	---	---	---	---
	1/13/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.5	---	---	---	---	---	---
	7/12/2005	P	<0.2	0.2J	0.4J	1.6J	*2.2*	1.8	<0.4	26.5	51.9	0.77	110J	0.31J
	1/17/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	3.1	---	---	---	---	---	---
	7/14/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.3	<0.040	26.5	55.1	0.22J	130	0.56J
	7/12/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.1	<0.040	26.8	47	2.67	170J	0.59J
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.7	<0.040	17.2	46	---	160	0.59
	7/8/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.7	<0.04	37.9	51.7	0.16	160	0.66
	7/14/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.5	<0.040	30	48.6	0.20J	130	0.54
	7/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.2	<0.040	26.2	41.3	<0.090	120	0.36
	10/18/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.5	<0.04	36	47.7	0.58	170	0.94
	11/5/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.9 J	<0.040	29.4	40.6	0.24J	730	0.25
	10/24/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	0.9 J	R	23.9	35.1	0.94	120	0.4
	10/22/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.45 J	<0.10	<1.0	25.6E	16.9	19J	0.35
	10/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.51J	<0.10	11.5	<0.10J	<1.0	160	0.46
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	0.99J	<0.016	16.9	2.0J	<1.0H	180	0.59
MW-110	6/2/2004	P	1.2	0.2J	0.3J	0.9J	*2.6*	170	---	---	---	---	---	---
	7/21/2004	P	<1	<1	<1	<5	*ND*	160	0.065J	23.9	1.2	0.27	51	0.044
	10/5/2004	P	1.3	<0.2	0.3J	0.9J	*2.5*	230	---	---	---	---	---	---
	1/12/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	5.3	---	---	---	---	---	---
	7/14/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	36	<0.4	45J	3.9	6.14	7.7J	<0.002
	1/20/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.2	---	---	---	---	---	---
	7/11/2006	P	<0.2	<0.2	<0.2	8.2	*8.2*	630	<0.040	14	1.5	0.47	14	0.065J
	7/11/2007	P	<5.0	2.3	2.0	4.3J	*8.6*	<10	0.45	5.8	---	3.46	5.3J	<0.0069UJ
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.3	0.76	7.3	0.039	2.01	89	<0.002
	7/7/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.6	0.73	7.1	0.017	2.38	180	0.0051
	7/15/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.8J	1.1	7.3	0.19	4.11	5.1J	<0.01
	7/14/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.1	0.83	6.2	0.13	1.14	7.6	<0.01
	10/18/2012	P	<0.2	<0.2	3.0	<0.6	*3.0*	270	0.27	<2.5	0.22	3.12	7.7J	0.015J
	11/4/2013	P	<0.2	<0.2	2.8	<0.6	*2.8*	290	0.23	6.5	0.31	0.89	17	0.039
	10/24/2014	P	<0.2	<0.2	0.3J	1.4	*1.7*	2.9	0.28	<2.5	0.31	9.48	<4	0.051
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	24	0.19	< 1	5.79	0.059J	1.2	0.019
	10/19/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	47	0.38	5.14	0.20J	1.1	9.6	0.018
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	97	<0.016	20.2	1.9J	<1.0H	33	0.019
MW-111	6/2/2004	P	1100	210	3200	11000	*15510*	<50	---	---	---	---	---	---
	7/21/2004	P	970	220	3200	10000	*14390*	140	<0.04	<3	40.9	0.32	120	8.6
	10/5/2004	P	1100	180	2900	9200	*13380*	210	---	---	---	---	---	---
	1/14/2005	P	1100	150	2200	6400	*9850*	260	---	---	---	---	---	---
	7/12/2005	P	1100	140	2200	6000	*9440*	<200	<0.04	<6	37.1	<0.09	83J	8.2J
	1/20/2006	P	940	100	1500	4100	*6640*	290	---	---	---	---	---	---
	7/14/2006	P	800	80	1900	4000	*6780*	230	<0.040	<3.0	34.7	<0.090	89	8.8J
	1/9/2007	P	1400	74	1900	3500	*6874*	330J	---	---	---	---	---	---
	7/12/2007	P	860	54	1600	2900	*5414*	<200	0.14	6.4J	17.4	2.56	82J	8.6J
	1/9/2008	P	1200	56	1000	1700	*3956*	<200	---	---	---	---	---	---
	7/10/2008	P	1300	1500	73	2300	*5173*	160	---	<2.5	29.2	0.1	110	14

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-111	1/22/2009	P	370	710	22	1400	*2502*	72	---	---	---	---	---	---
	7/8/2009	P	490	38	750	930	*2208*	56	<0.04	<2.5	13.9	<0.09	79	6.9
	1/5/2010	P	170	11	450	550	*1181*	86	---	---	---	---	---	---
	7/14/2010	P	72	1.4	110	47	*230.4*	21	<0.040	8.1	5.9	0.29J	100	4.1
	4/6/2011	P	96	3.1	110	46	*255.1*	5.9J	---	---	---	---	---	---
	7/13/2011	P	38	1.5	84	18	*141.5*	<25	<0.040	4.4	5.3U	<0.090	63	2.5
	1/19/2012	P	18	0.9J	23	3.7	*45.6*	6.6	---	---	---	---	---	---
	10/18/2012	P	690	22	430	180	*1322*	82	<0.04	<2.5	17.5	<0.09	90	15
	1/16/2013	P	220	11	270	57	*558*	78	---	---	---	---	---	---
	5/17/2013	P	240	11	270	67	*588*	<0.3	---	---	---	---	---	---
	11/5/2013	P	260	6.0	130	25	*421*	<75	<0.040	<2.5	10.8	<0.090	88	12
	1/31/2014	P	130	4.6	89	16	*239.6*	<33	---	---	---	---	---	---
	4/17/2014	P	43	1.7	44	8.3	*97*	<17	---	---	---	---	---	---
	10/24/2014	P	200	7.6	110	22	*339.6*	<40	<0.04	<2.5	5.6	1.01	75	11
	4/23/2015	P	65	2.0	16	3.5	86.5	1.7	---	---	---	---	---	---
	10/22/2015	P	270	12	220	23	525	22	< 0.1	< 1	1.45	0.79	8.4J	1.1
	4/21/2016	P	260	8.7	57	20	345.7	11	---	---	---	---	---	---
	10/20/2016	P	330	11	120	20	481	22	<0.10	1.30	<0.10J	<1.0	140	12
	4/27/2017	P	180	8.2	74	13	275.2	7.8	---	---	---	---	---	---
	10/26/2017	P	66	2.2	12	3.9	84.1	<0.13	<0.016	3.6	0.0087UJ	<1.0H	110	5.6
MW-112	6/2/2004	P	0.2J	<0.2	0.2J	<0.6	*0.4*	0.4J	---	---	---	---	---	---
	7/21/2004	P	<0.2	<0.2	<0.3U	<0.6	*ND*	<0.3	2	32	<0.008	2.6	310	<0.002
	10/5/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	1/13/2005	P	<0.2	<0.2	<0.2	0.7J	*0.7*	<0.3	---	---	---	---	---	---
	7/14/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.7	22.6	<0.008	1.37	23	<0.002
	1/20/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/11/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.7	24.1	<0.0080	1.83	20	<0.0028UJ
	7/12/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.3	19.4	<0.0080	1.61	28J	<0.0020J
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.4	19.4	<0.0080	1.7	26	<0.0020
	7/9/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.6	19.8	<0.01	2.14	81	<0.005U
	7/15/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	2.3	17.8	0.025J	1.44	16	<0.01
	7/15/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	2.3U	24.6	0.021UJ	1.54	15	0.0073UJ
	10/18/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	2.5	47.7	0.038UJ	1.26	28	<0.005
	10/31/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.8	29.8	<0.010	1.14	30	<0.003
	10/21/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	2	25.6	0.044 J	1.65	33	<0.003
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	2.01	1.6	23.2	0.079J	5.3	<0.005
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	1.3	23.2	<0.10J	1.2	43	<0.005
	10/25/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	1.46	17.4	0.0087UJ	1.6H	26	<0.0017
MW-113	6/2/2004	P	7700	410	150	570	*8830*	1600	---	---	---	---	---	---
	7/22/2004	P	7300J	380J	220J	670J	*8570*	1600J	<0.04J	<3.0	12.9	0.34	100J	14J
	10/5/2004	P	7900	330	270	790	*9290*	1700	---	---	---	---	---	---
	10/6/2004	D	7900	330	270	800	*9300*	1700	---	---	---	---	---	---
	1/14/2005	P	6600	270	160	650	*7680*	1300	---	---	---	---	---	---
	4/13/2005	P	6830	332	182	683	*8027*	1160	---	---	---	---	---	---
	7/14/2005	P	7500	320	290	670	*8780*	1600	<0.04	2.4J	12.7	<0.09	66J	11J
	10/27/2005	P	6700	300	320	770	*8090*	1200	---	---	---	---	---	---
	1/20/2006	P	6800	280	290	610	*7980*	1100	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-113	4/12/2006	P	280	13	12	27	*332*	46	---	---	---	---	---	---
	7/14/2006	P	6500	300	380	670	*7850*	1000	<0.040	<1.5	12.8	0.14J	69	12J
	10/11/2006	P	6000	230	350	560	*7140*	1000	---	---	---	---	---	---
	1/10/2007	P	7000	310	440	540	*8290*	950	---	---	---	---	---	---
	4/3/2007	P	7300	360	470	540	*8670*	1000	---	---	---	---	---	---
	7/13/2007	P	7100	290	510	430	*8330*	1200	<0.040	<5.0	14	<0.090	85J	13J
	10/2/2007	P	7200	250	540	370	*8360*	1200J	---	---	---	---	---	---
	1/9/2008	P	5800	260	530	390	*6980*	990	---	---	---	---	---	---
	4/8/2008	D	5900	530	250	370J	*7050*	850	---	---	---	---	---	---
	4/8/2008	P	5900J	550	260	390	*6605*	910	---	---	---	---	---	---
	7/11/2008	P	6700	750	280	470	*8200*	1000	<0.040	<5.0	14.7	0.27	81	16J
	10/7/2008	P	6500	710	220	410	*7840*	860	---	---	---	---	---	---
	1/6/2009	P	6700	760	250	450	*8160*	940	---	---	---	---	---	---
	4/7/2009	P	6700	350	800	580	*8430*	850	---	---	---	---	---	---
	7/7/2009	P	5700	260	760	510	*7230*	770	<0.04	<2.5	16.1	0.1	66	16
	10/6/2009	P	6700	280	960J	680	*8620*	870	---	---	---	---	---	---
	1/5/2010	P	6100	270	890	650	*7910*	810	---	---	---	---	---	---
	4/6/2010	P	6100	270	770	600	*7740*	810	---	---	---	---	---	---
	7/15/2010	P	5800	310	930	890	*7930*	630	<0.040	<5.0	17.1	<0.090	48	16
	10/5/2010	P	5500	280	940	920	*7640*	610	---	---	---	---	---	---
	1/11/2011	P	6400	260	920	780	*8360*	600	---	---	---	---	---	---
	4/5/2011	P	7400	280	1000	800	*9480*	630J	---	---	---	---	---	---
	7/13/2011	D	6800	270	1100	960	*9130*	580	<0.040	<2.5	18.3	<0.090	54	21
	7/13/2011	P	7000	280	1200	980	*9460*	580	<0.040	<5.0	17.3	<0.090	57	21
	10/25/2011	D	7100	1300	1200	1900	*11500*	510	---	---	---	---	---	---
	10/25/2011	P	7400	1300	1300	2000	*12000*	520	---	---	---	---	---	---
	1/18/2012	P	6900	1500	1400	2500	*12300*	450	---	---	---	---	---	---
	4/10/2012	P	5900	780	1100	1600	*9380*	410	---	---	---	---	---	---
	7/20/2012	D	7700	500	1500	2400	*12100*	520	---	---	---	---	---	---
	7/20/2012	P	7200	470	1400	2200	*11270*	480	---	---	---	---	---	---
	10/16/2012	D	7100	250	1300	1700	*10350*	480	<0.04	<5	19.7U	<0.09	83	23
	10/16/2012	P	6700	230	1200	1600	*9730*	460	<0.04	<5	25.9U	<0.09	88	19
	1/15/2013	P	8500	250	1500	1600	*11850*	510	---	---	---	---	---	---
	5/15/2013	P	8000	240	1600	1200	*11040*	520	---	---	---	---	---	---
	7/24/2013	P	7100	270	1500	1000	*9870*	470	---	---	---	---	---	---
	10/30/2013	P	7500	280	1500	860	*10140*	480	<0.040	<5.0	21.0	<0.090	87	17
	10/30/2013	D	7700	280	1500	880	*10360*	470	<0.040	<5.0	20.6	<0.090	80	18
	5/15/2013	D	8100	240	1700	1200	*11240*	530	---	---	---	---	---	---
	1/29/2014	P	8100	180	1400	720	*10400*	420	---	---	---	---	---	---
	4/15/2014	P	8200	180	1500	660	*10540*	470	---	---	---	---	---	---
	4/15/2014	D	8200	190	1500	670	*10560*	460	---	---	---	---	---	---
	7/24/2014	P	7300	210	1600	710	*9820*	400	---	---	---	---	---	---
	10/20/2014	P	8500	220	1400	670	*10790*	430	<0.04	<5	17.7	<0.4	79	24
	10/20/2014	D	7800	200	1200	630	*9830*	380	<0.04	< 5	23.5	< 0.4	84	23
	1/30/2015	P	9,000 J	140	1,400	470	11,010	300	---	---	---	---	---	---
	4/21/2015	P	7,700	130	1,400	410	9,640	190 J	---	---	---	---	---	---
	7/21/2015	P	7,300	150	1,200	410	9,060	230	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-113	10/20/2015	P	7,800	140	1,400	440	9,780	230	<0.1	<1.0	0.21J	0.22J	10J	10
	1/19/2016	P	7,500	110	1,200	280	9,090	260	---	---	---	---	---	---
	4/20/2016	P	6,300	46	<7.5	210	6,556	290	---	---	---	---	---	---
	4/20/2016	D	7,200	88	6.3J	240	7,533	290	---	---	---	---	---	---
	7/21/2016	P	9,100	140	1,600	230	11,070	270	---	---	---	---	---	---
	7/21/2016	D	8,800	130	1,500	230	10,660	260	---	---	---	---	---	---
	10/21/2016	P	8,100	120	1,500	170	9,890	230	<0.10	0.63	0.18J	<1.0	79	14
	10/21/2016	D	8,900	130	1,500	170	10,700	230	<0.10	0.56J	0.20J	<1.0	76	12
	1/20/2017	P	12,000	97	1,100	94	13,291	220	---	---	---	---	---	---
	4/25/2017	P	8,200	120	1,400	120	9,840	200	---	---	---	---	---	---
	4/25/2017	D	9,400	130	1,700	150	11,380	230	---	---	---	---	---	---
	7/27/2017	P	9,000	130	1,400	200	10,730	180	---	---	---	---	---	---
	10/24/2017	P	8,200	120	1,300	140	9,760	150	<0.016	0.81	0.41J	<1.0H	83	25
	10/24/2017	D	7,400	110	1,200	130	8,840	170	<0.016	<0.33	0.18J	<1.0H	76	26
MW-114	6/1/2004	P	1.5	9.2	7.9	71	90	<0.3	---	---	---	---	---	---
	7/23/2004	P	<0.5	<0.7	<0.8	<0.8	*ND*	<0.5	6.7J	31.5J	<0.008J	3.85	41	<0.002
	10/6/2004	P	<0.2	<0.2	<0.2	3.4	*3.4*	<0.3	---	---	---	---	---	---
	1/12/2005	P	0.7J	0.2J	0.5J	0.9J	*2.3*	3.5	---	---	---	---	---	---
	7/14/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	7.5	29.2	0.025J	4.72	26J	<0.002
	1/20/2006	P	<0.2	0.2J	<0.2	<0.6	*0.2*	<0.3	---	---	---	---	---	---
	7/14/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6	32.7	<0.0080	4.51	36	<0.0020J
	7/12/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6.1	26.6	<0.0080	4.08	34J	<0.0020J
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	5.1	26.2	<0.0080	5.26	42	<0.0020
	7/7/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	5.9	32.6	0.032	5.72	31	<0.005
	7/13/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6.5	23.9	<0.010	4.6	26	<0.0050
	7/15/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3J	6.4U	26.3	0.040UJ	5.32	54	0.0070U
	10/18/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6.8	23.4	<0.01	4.99	37	<0.005
	10/29/2013	P	<0.2	<0.2	0.9 J	8.8	*9.7*	<0.3	8.1	20.6	0.11 U	5.57	35	<0.003
	10/17/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	8.1	20.1	0.13	5.29	36	<0.003
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	7.11	<1.0	20	0.1J	3.4	<0.005
	10/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	6.08J	17.8	<0.10J	6.2	49	<0.005
	10/24/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	6.98J	18.1	0.0087J	<1.0H	38	0.0049J
MW-116	6/2/2004	P	2900	130	1900	2300	*7230*	120	---	---	---	---	---	---
	7/23/2004	P	2500	110	1500	1800	*5910*	110	<0.04J	<6J	34.9J	1.26	200	19
	8/25/2004	P	3000	130	1700	2000	*6830*	110	---	---	---	---	---	---
	10/6/2004	P	2900	100	1200	1400	*5600*	150	---	---	---	---	---	---
	1/14/2005	P	2500	94	840	1200	*4634*	170	---	---	---	---	---	---
	7/14/2005	P	2600	88	670	1100	*4458*	160	<0.04	<3	46.6	<0.09	130J	19J
	1/17/2006	P	1800	65	27	700	*2592*	<100	---	---	---	---	---	---
	7/13/2006	P	1500	61	300	720	*2581*	90	<0.040	<2.1U	40.2	<0.090	130	15J
	1/10/2007	P	1900	60	160	400	*2520*	120	---	---	---	---	---	---
	7/11/2007	D	---	---	---	---	---	---	<0.040	<12.5	45.4	<0.090	---	---
	7/11/2007	P	1800	74	210	410J	*2494*	<200	<0.040	<12.5	45.9	<0.090	180	22J
	1/10/2008	P	450	3.7	25	34	*512.7*	40	---	---	---	---	---	---
	7/9/2008	P	690	110	11	87	*898*	34	<0.040	27.4	22.5	<0.090	180	16J
	1/6/2009	P	330	26	3.1	13	*372.1*	23	---	---	---	---	---	---
	7/9/2009	D	---	---	---	---	---	---	<0.04	21.3	19.4	<0.09	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-116	7/9/2009	P	240	1.6	4.7	2.4	*248.7*	19	<0.04	22.6	20.1	<0.09	86	6.4
	1/5/2010	P	160	2.0	12	4.2	*178.2*	24	---	---	---	---	---	---
	7/15/2010	P	240	1.2	3.0	1.5J	*245.7*	12	1.3	49.6	4.8	<0.090	43	11
	1/11/2011	P	120	1.5	4.3	1.8	*127.6*	16	---	---	---	---	---	---
	7/14/2011	P	76	0.3	0.5	<1.0	*76.8*	5.3	0.33	129	0.29	0.2	35	4.7
	1/18/2012	P	41	1.0	5.6	1.7J	*49.3*	5.7	---	---	---	---	---	---
	10/18/2012	P	140	0.9J	0.8J	<3.0	*141.7*	21	0.073J	12.3	7.9	0.27J	430	9.3
	1/15/2013	P	340	8.0	8.2	4.0	*360.2*	45	---	---	---	---	---	---
	5/17/2013	P	75	1.2	2.6	0.9 J	*79.7*	<0.3	---	---	---	---	---	---
	10/31/2013	P	59	1.4	0.3 J	0.9 J	*61.6*	19	<0.040	15.5	7.7	<0.090	73	11
	1/30/2014	P	14	0.3 J	0.2 J	0.4 J	*14.9*	2.9	---	---	---	---	---	---
	4/15/2014	P	51	1.4	3.7	2.6	*58.7*	<7	---	---	---	---	---	---
	10/21/2014	P	<170	5.9	<2	2.3	*8.2*	<41	<0.04	<5	14.7	<0.4	120	17
	4/21/2015	P	27	1.0	0.5 J	0.39 J	28.89	4.4	---	---	---	---	---	---
	10/21/2015	P	190	8.8	1.6	4.3	204.7	25	0.029J	<1.0	0.73	0.1J	26	8.0
	4/21/2016	P	240	8.8	1.8	3.2	253.8	16	---	---	---	---	---	---
	10/18/2016	P	120	7.6	1.1	2.7	131.4	15	0.011J	9.93	0.11J	<1.0	170	9.3
	4/25/2017	P	130	5.8	1.4	2.7	139.9	9.8	---	---	---	---	---	---
	10/26/2017	P	210	13	1.5	5.7	230.2	<0.13	<0.016	0.97	0.14R	<1.0H	190	14
MW-117	6/2/2004	P	99	6.5	67	13J	*185.5*	1400	---	---	---	---	---	---
	7/26/2004	P	85	6.6	43	28	*162.6*	530	<0.04	14.9	36	1.47	200	4.2
	10/6/2004	P	81	5.8	42	21	*149.8*	560	---	---	---	---	---	---
	1/12/2005	P	48	3.9J	32	19	*102.9*	240	---	---	---	---	---	---
	4/13/2005	D	6.0	0.57J	28.4	26.2	*61.17*	26.7	---	---	---	---	---	---
	4/13/2005	P	6.0	0.58J	32.4	28.3	*67.28*	26.1	---	---	---	---	---	---
	7/14/2005	P	63	4.9J	28	39	*134.9*	390	<0.04	31.3	30.6	<0.09	120J	4J
	10/27/2005	P	8.8	1.6	19	18	*47.4*	9.3	---	---	---	---	---	---
	1/20/2006	P	1.3	1.2	17	20	*39.5*	6.7	---	---	---	---	---	---
	7/14/2006	P	14J	0.7J	7.0J	6.0J	*27.7*	14J	<0.040	<6.7U	40.7	<0.090	680	1.9J
	1/10/2007	P	11	1.8	4.2	6.6	*23.6*	3.3	---	---	---	---	---	---
	4/3/2007	P	16	1.4	2.9	7.7	*28*	17	---	---	---	---	---	---
	7/13/2007	P	5.9	0.7J	0.9J	1.7J	*9.2*	3	<0.040	<10.0	35.6	<0.090	250J	2.2J
	10/2/2007	P	9.6	<5.0	1.7	3.0	*14.3*	21J	---	---	---	---	---	---
	4/8/2008	P	2.9	<1.0	1.0	2.0J	*5.9*	39	---	---	---	---	---	---
	7/11/2008	P	14	1.7	1.2	3.3	*20.2*	14	<0.040	<5.0	26.3	<0.090	160	11J
	10/7/2008	P	5.9	1.6	0.8	2	*10.3*	1.9	---	---	---	---	---	---
	1/6/2009	P	5.7	0.9	0.7	1.9	*9.2*	6.6	---	---	---	---	---	---
	4/7/2009	P	3.6	0.7	1.9	2.7	*8.9*	1.6	---	---	---	---	---	---
	7/7/2009	P	0.9	0.5	0.8	<3	*2.2*	1.4	0.15	20.7	9.1	0.56	110	0.42
	10/6/2009	P	3.8	1.4	0.5J	1.2	*6.9*	6.1	---	---	---	---	---	---
	1/5/2010	P	0.3J	0.4J	0.9J	1.6J	*3.2*	0.3J	---	---	---	---	---	---
	4/6/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	7/13/2010	P	3.8	0.9UJ	0.5J	1.5J	*5.8*	7	<0.040	21.2	17.1	0.5	69	10
	10/5/2010	P	0.5J	<0.2	<0.2	<0.6	*0.5*	<2.0	---	---	---	---	---	---
	1/11/2011	P	1.5	0.3	0.2	1.1	*3.1*	2.5	---	---	---	---	---	---
	4/5/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.3J	---	---	---	---	---	---
	7/14/2011	P	1.1	<0.2	<0.2	<0.6	*1.1*	0.5	1.9	33.6	4.8	1.11	170	0.97

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-117	10/25/2011	P	0.4	<0.2	<0.2	<0.6	*0.4*	0.6	---	---	---	---	---	---
	1/18/2012	P	1.4	0.5J	0.4J	1.2J	*3.5*	1.1	---	---	---	---	---	---
	4/10/2012	P	3.1	1.3	<1	1.9J	*6.3*	2.6	---	---	---	---	---	---
	7/20/2012	P	0.7J	0.5J	0.6J	1.8J	*2.9*	1.1	---	---	---	---	---	---
	10/16/2012	P	0.8J	0.7J	0.9J	2.4J	*4.8*	3.7	0.052J	<5	18.3U	<0.09	130	8.0
	1/15/2013	P	1.8	0.8 J	0.9 J	2.2 J	*5.7*	7.2	---	---	---	---	---	---
	5/16/2013	P	6.0	0.8 J	0.6 J	1.7 J	*9.1*	4.6	---	---	---	---	---	---
	7/24/2013	P	0.3 J	<0.2	<0.2	<0.6	*0.3*	<0.3	---	---	---	---	---	---
	10/31/2013	P	3.2	0.8 J	1.1	2.1 J	*7.2*	12	<0.040	<5.0	30.6	<0.090	110	14
	1/30/2014	P	3.1	0.6 J	1.0	2.1	*6.8*	11	---	---	---	---	---	---
	4/16/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	---	---	---	---	---	---
	7/24/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	---	---	---	---	---	---
	10/21/2014	P	1.4	0.6 J	0.7 J	<2	*2.7*	5.6	0.45	<5	12.8	0.65	84	11
	1/30/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1.0	---	---	---	---	---	---
	4/21/2015	P	0.56 J	<1.0	<1.0	<2.0	0.56	0.47 J	---	---	---	---	---	---
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1.7	0.04 J	< 1	15	3.9	18	3.2
	1/20/2016	P	0.23J	<1.0	<1.0	<2.0	0.23	5.6	---	---	---	---	---	---
	4/21/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	2.0	---	---	---	---	---	---
	7/21/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	3.0	---	---	---	---	---	---
	10/21/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	1.7	2.6	18.3	<0.10	<1.0	86	2.3
	1/19/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
	4/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	0.36J	---	---	---	---	---	---
	7/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
	10/25/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	0.47J	0.48	4.61	3.4J	<1.0H	70	4.4
MW-118	10/26/2005	P	22	2.6	4.2	8.7	*37.5*	44	---	---	---	---	---	---
	1/19/2006	P	22	2.3	3.2	6.3	*33.8*	37	---	---	---	---	---	---
	4/11/2006	P	15	9.7	3.4	6.1	*34.2*	27	---	---	---	---	---	---
	7/13/2006	P	13	1.8	2.8	6.0	*23.6*	<50	<0.040	<6.0	14.4	0.29J	35	12J
	10/11/2006	P	12	<10	2.8	4.2	*19*	33	---	---	---	---	---	---
	1/10/2007	P	19	<20	3.9	6.2	*29.1*	22	---	---	---	---	---	---
	4/3/2007	P	<20	10	3.5	4.8	*18.3*	<25.	---	---	---	---	---	---
	7/11/2007	P	17	<10	3.0	5.0J	*25*	25	<0.040	<10.0	17.6	5.36	58	18J
	10/2/2007	P	21	<5.0	2.2	3.4	*26.6*	30J	---	---	---	---	---	---
	4/8/2008	P	31	2.4	2.6	4.9J	*40.8*	17	---	---	---	---	---	---
	7/9/2008	P	22	2.3	2.5	5.8	*32.6*	19	<0.040	<5.0	22	<0.090	86	16J
	10/7/2008	P	27	1.3	1.3	3.6	*33.2*	12	---	---	---	---	---	---
	1/6/2009	P	40	1.7	2.2	4.3	*48.2*	14	---	---	---	---	---	---
	4/7/2009	P	28J	3.0J	3.1J	5.0J	*39.1*	19J	---	---	---	---	---	---
	7/7/2009	P	9.8J	<5.0	2.5J	<5	*12.3*	<20	<0.04	<5	21.1	<0.09	60	19
	10/6/2009	P	14	2.4	2J	3.6	*22*	18	---	---	---	---	---	---
	1/5/2010	P	19	2.7	2.4	4.2	*28.3*	27	---	---	---	---	---	---
	4/6/2010	P	27	1.7	1.5	4.6	*34.8*	13	---	---	---	---	---	---
	7/13/2010	P	13	2.5U	2.2	4.7	*19.9*	28	<0.040	<5.0	31.6	<0.090	72	16
	10/5/2010	P	8.3	<10	2.2	3.2	*13.7*	27	---	---	---	---	---	---
	1/11/2011	P	13	<10	1.8	3	*17.8*	22	---	---	---	---	---	---
	4/5/2011	P	16	1.4	1.3	2.7	*21.4*	5.8J	---	---	---	---	---	---
	7/14/2011	P	10	<10	2.2	4.1	*16.3*	<20	<0.040	<5.0	29	<0.090	81	14

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
MW-118	10/25/2011	P	7.7	2.4	2.0	3.5	*15.6*	22	---	---	---	---	---	---
	1/18/2012	P	4.4J	1.1J	1.9J	<3.0	*7.4*	6.2	---	---	---	---	---	---
	4/10/2012	P	9.4	2.4	1.5	2.9J	*16.2*	19	---	---	---	---	---	---
	10/16/2012	P	8.5	<8.0	2.3	3.0	*13.8*	15	<0.04	<5	23.5U	<0.09	480	10
	1/16/2013	P	8.0	2.3	2.1	4.5	*16.9*	18	---	---	---	---	---	---
	5/16/2013	P	7.3	2.7	2.3	3.6	*15.9*	27	---	---	---	---	---	---
	7/24/2013	P	3.3	1.1	1.5	2.5J	*8.4*	8.4	---	---	---	---	---	---
	10/29/2013	P	4.3	<6.0	2.1	2.9J	*9.3*	20	<0.040	<5.0	47.2	<0.090	760	5.9
	1/30/2014	P	6.2	<8.0	2.4	3.9	*12.5*	20	---	---	---	---	---	---
	4/16/2014	P	7.7	<4.0	2.1	2.8	*12.6*	17	---	---	---	---	---	---
	7/24/2014	P	6.3	<4.0	2.1	3.0	*11.4*	<13	---	---	---	---	---	---
	10/17/2014	P	6.6	<6.0	2.5	<4.0	*9.1*	<26	0.064J	<5	25.3	<0.4	87	12
	2/3/2015	P	1.9 J	0.86J	0.34J	1.2J	4.30	1.9	---	---	---	---	---	---
	4/22/2015	P	2.3	0.84J	0.35J	1.3J	4.79	1.9	---	---	---	---	---	---
	7/22/2015	P	2.4	0.96J	<1.0	1.3J	4.66	2.1	---	---	---	---	---	---
	10/21/2015	P	1.5	0.92J	0.39J	1.3J	4.11	3.6	<0.10	<1.0	0.33J	1.8	16	6.4
	1/20/2016	P	1.3	0.87J	0.34J	1.1J	3.61	3.6	---	---	---	---	---	---
	4/21/2016	P	1.2	0.88J	0.33J	1.2J	3.61	2.5	---	---	---	---	---	---
	7/20/2016	P	1.3	1.0	0.36J	1.2J	3.86	3.0	---	---	---	---	---	---
	10/21/2016	P	1.2	0.83J	0.30J	1.1J	3.43	4.1	<0.10	0.62	<0.10J	<1.0	85	10
	1/19/2017	P	0.91J	0.77J	<0.30	1.0J	2.68	4.3	---	---	---	---	---	---
	4/26/2017	P	0.88J	0.83J	0.32J	0.67J	2.7	3.4	---	---	---	---	---	---
	7/26/2017	P	0.95J	0.93J	0.32J	0.67J	2.87	2.1	---	---	---	---	---	---
	10/25/2017	P	0.84J	0.79J	0.32J	0.68J	2.63	2.3	<0.016	0.79	5.6J	<1.0H	79	16
N-42	4/16/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	0.5J	---	---	---	---	---	---
	7/23/2004	P	1.1	<0.2	<0.2	<0.6	*1.1*	43	1.2J	6.5J	0.49J	1.1	19	2.4
	10/6/2004	P	8.3	0.4J	<0.2	<0.6	*8.7*	69	---	---	---	---	---	---
	1/12/2005	P	120	2.6	0.2J	1.5J	*124.3*	56	---	---	---	---	---	---
	4/13/2005	P	54.4	1.1	<0.27	0.45J	*55.95*	31.2	---	---	---	---	---	---
	7/14/2005	P	74	1.6	<0.2	1.4J	*77*	45	1.4	10.4	3.2	<0.09	25J	4.9J
	10/27/2005	P	5.4	<0.2	<0.2	<0.6	*5.4*	4.4	---	---	---	---	---	---
	1/18/2006	P	30	1.2	<0.2	<0.6	*31.2*	21	---	---	---	---	---	---
	4/12/2006	P	130J	1.1J	0.5J	3.8	*135.4*	42	---	---	---	---	---	---
	7/13/2006	P	2.1	0.2J	<0.2	<0.6	*2.3*	5.7	0.57	8.8	2.6	0.84	330	3J
	10/10/2006	P	150J	4.7	0.6J	5.3	*160.6*	49	---	---	---	---	---	---
	1/11/2007	P	4.5	0.3J	<0.2	<0.6	*4.8*	4.2J	---	---	---	---	---	---
	4/3/2007	P	5.2J	0.3J	<0.2	<0.6	*5.5*	10	---	---	---	---	---	---
	7/10/2007	P	33J	2.5	<0.2U	2.0J	*37.5*	18	0.57	4.3J	9.4	<0.090	45	9.2J
	10/3/2007	P	7.0	2.1	0.3J	3.4	*12.8*	52J	---	---	---	---	---	---
	1/9/2008	P	1.8	0.3J	<0.2	<0.6	*2.1*	15	---	---	---	---	---	---
	4/8/2008	P	1.0	<0.2	<0.2	<0.6	*1.0*	6.1	---	---	---	---	---	---
	7/8/2008	P	14	<0.2	1.0	1.6	*16.6*	20	0.85	10	5	0.23	31	7.7
	10/7/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.9	---	---	---	---	---	---
	1/6/2009	P	0.7	<0.2	<0.2	<0.6	*0.7*	2.9	---	---	---	---	---	---
	4/7/2009	P	0.5	<0.2	<0.2	<0.6	*0.5*	1.6	---	---	---	---	---	---
	7/7/2009	P	13J	0.8	<0.2	1.2	*15*	5.5	0.14	<2.5	3.4	1.98	690	4.2
	10/6/2009	P	2.7	1.1	0.3J	1.4	*5.5*	7.9	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
N-42	1/5/2010	P	1.1	<0.2	<0.2	<0.6	*1.1*	2.2	---	---	---	---	---	---
	4/6/2010	P	0.5J	<0.2	<0.2	<0.6	*0.5*	1.9	---	---	---	---	---	---
	7/13/2010	D	---	---	---	---	---	---	<0.040	<5.0	12.4	---	---	---
	7/13/2010	P	13	1.8U	0.4J	3.0	*16.4*	9.5	0.04	5	12.3	0.14J	27J	11
	10/5/2010	P	7.0	1.1	0.2J	2.0J	*10.3*	34	---	---	---	---	---	---
	1/13/2011	P	0.9	0.3	0.3	0.7	*2.2*	4.3	---	---	---	---	---	---
	4/5/2011	P	10J	0.6	<0.2	0.7	*11.3*	2.7J	---	---	---	---	---	---
	7/13/2011	D	---	---	---	---	---	---	0.059	<2.5	9.7	---	---	---
	7/13/2011	P	4.1	0.7	<0.2	1.5	*6.3*	4.6	0.06	<2.5	10.2U	0.35	24J	5.5
	10/25/2011	P	0.3	<0.2	<0.2	0.8	*1.1*	14	---	---	---	---	---	---
	1/18/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	5.2	---	---	---	---	---	---
	4/10/2012	P	0.8J	0.7J	0.3J	1.2J	*3.0*	47	---	---	---	---	---	---
	7/20/2012	P	40	1.1	1.6	4.8	*47.5*	49	---	---	---	---	---	---
	10/16/2012	D	---	---	---	---	---	---	0.26	<5	10.3U	---	---	---
	10/16/2012	P	1.7	0.5J	1.5	3.2	*6.9*	27	0.25	<5	11U	<0.09	46	8.8
	1/15/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	9.7	---	---	---	---	---	---
	5/15/2013	P	3.1	0.3 J	<0.2	<0.6	*3.4*	2.5	---	---	---	---	---	---
	7/24/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	---	---	---	---	---	---
	10/30/2013	P	2.3	0.4 J	0.7J	1.2J	*4.6*	27	0.20	<5.0	5.7 J	0.13 J	43	7.1
	10/30/2013	D	---	---	---	---	---	---	0.20	<5.0	5.8	---	---	---
	1/29/2014	P	8.4	0.9 J	0.4J	2.9	*12.6*	30	---	---	---	---	---	---
	4/15/2014	P	25J	0.5 J	0.7J	0.8J	*27*	8.3J	---	---	---	---	---	---
	7/24/2014	P	73	<0.2	0.3J	0.4J	*73.7*	4.4	---	---	---	---	---	---
	10/20/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	1.1	3.9	20.4	0.21	5.71	13	0.3J
	10/20/2014	D	---	---	---	---	---	---	3.9	20.1	0.15	4.51		
	1/30/2015	P	1.3J	<1.0	<1.0	<2.0	1.3	1.9	---	---	---	---	---	---
	4/23/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	---	---	---	---	---	---
	7/21/2015	P	1.3	<1.0	<1.0	<2.0	1.3	3.7	---	---	---	---	---	---
	10/21/2015	P	0.62J	<1.0	<1.0	<2.0	0.62	7.8	0.4	1.1	6.46	0.1J	2.6	1.3 J
	1/19/2016	P	0.18J	<1.0	<1.0	<2.0	0.18	0.96J	---	---	---	---	---	---
	4/22/2016	P	1.7	<1.0	<1.0	<2.0	1.7	9.7	---	---	---	---	---	---
	7/20/2016	P	1.5	<1.0	<1.0	<2.0	1.5	12	---	---	---	---	---	---
	10/20/2016	P	0.19J	<1.0	<1.0	<2.0	0.19	3.0	2.43	17.9	<0.10J	1.8	20J	0.51
	1/17/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	0.50J	---	---	---	---	---	---
	4/27/2017	P	0.10J	<0.25	<0.30	<0.28	0.1	0.39J	---	---	---	---	---	---
	7/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
	10/26/2017	P	1.5	0.27J	<0.30	1.1J	2.87	15	<0.016	1.39	0.10U	<1.0H	45	9.5
N-43	12/12/1995	P	<0.5	<1	<1	<2	*ND*	---	---	---	---	---	---	---
	3/25/1997	P	<0.5	<1	<1	<2	*ND*	---	---	---	---	---	---	---
	7/8/2000	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	1.11	4.9J	0.25	1.38	29.25	<0.07
	1/10/2001	P	5.8	<0.86	1.2	<1.5	*7*	---	0.11	195	7.7	0.0	97	0.079
	7/20/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.040	148	3.0	0.0	44	0.15
	1/15/2002	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.1	35.1	0.44	7.16	8.8	0.0061
	7/23/2002	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.16	35.1	6.7	0.96	37	0.77
	1/30/2003	P	<0.2	<0.2	<0.2	0.71J	*0.71*	---	<0.04	1.9J	3.8	0.52	37	1.4
	7/25/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	1.7	38.1	0.45	0.61	210	0.0053
	1/22/2004	P	7.5	<0.2	<0.2	0.9J	*8.4*	---	1.0	7.5	1.4	2.88	33	0.8

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
N-43	7/27/2004	P	3.6	<0.2	<0.2	<0.6	*3.6*	<0.4U	0.44J	16.3	0.58	1.38	7.4	0.056
	7/13/2005	P	0.2J	<0.2	<0.2	<0.6	*0.2*	<0.3	1.2	24.4	0.06J	2.4	6.2J	0.0071J
	7/12/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	1.1	20.1	0.051J	2.79	6.9J	0.0021J
	7/12/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	3.1	24.1	0.13	4.39	<2.5	<0.0020J
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	8.9	<0.040	<2.5	1.4	0.99	53	6.8
	7/7/2009	P	0.2	<0.2	<0.2	<0.6	*0.2*	6.4	0.23	8.3	0.2	0.22	23	1.9
	7/13/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.5	5.8	29.3	0.1	3.52	31	0.093
	7/13/2011	P	<0.2	<0.2	<0.2	0.7	*0.7*	<0.3	3	18.8	0.15U	4.28	4.4	0.021U
	10/16/2012	P	<0.2	<0.2	0.8J	<0.6	*0.8*	6.3	0.31	2.7J	3.8U	2.83	29	3.7
	10/31/2013	P	<0.2	<0.2	1.3	<0.6	*1.3*	9.7	0.12	<5.0	13.7	0.12 J	62	6.9
	10/21/2014	P	<0.2	<0.2	<1.0	0.2J	*0.2*	6.4	0.27	5.6	7.4	1.6	38	6.6
	10/20/2015	P	1 U	1 U	1 U	2 U	*ND*	4.7	0.45	< 1	6.4	0.44	3.7J	3.3
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.18J	1.2	28	0.32J	4.0	5.0	0.03
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	6.2	<0.016	1.33	0.13R	<1.0H	53.0	13
N-45	7/21/2016	P	0.4J	0.27J	<1.0	<2.0	0.68	3.8	---	---	---	---	---	---
	10/20/2016	P	0.28J	0.26J	<1.0	<2.0	0.54	4.0	<0.10	19.2	<0.10J	<1.0	79	10
	4/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
	7/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	---	---	---	---	---	---
OW/MW-3	3/26/1997	P	5.8	<1.0	<1.0	<2.0	*5.8*	---	---	---	---	---	---	---
	1/16/2001	P	<0.20	1.2	<0.20	0.98J	*2.18*	---	0.87	44	0.066J	9.62	9.0	0.0051
	7/25/2001	D	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.14	47	---	---	26	0.66
	7/25/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.15	48	2.54	0.0	26	0.56
	3/12/2002	P	3.3	0.42J	0.44J	2.1J	*6.26*	---	<0.040	156	3.3	2.15	36	0.94
	7/22/2002	P	7.1	0.66J	0.25J	1.1J	*9.11*	---	0.32	108	1.51	2.3	80	4.5
	1/30/2003	D	1.7	0.33J	<0.2	0.91J	*2.94*	---	0.12	131	0.18	---	45	1.9
	1/30/2003	P	1.5	0.32J	<0.2	0.84J	*2.66*	---	0.12	135	0.14	1.41	46	1.9
	7/29/2003	D	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.099J	111	2.8	---	410	1.5
	7/29/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.11	120	2.9	0.45	430	1.1
	2/3/2004	P	0.7J	<0.2	<0.2	0.8J	*1.5*	---	<0.04	93.3	1.6	0.0	52	0.71
	7/27/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	6.4	0.98J	96.5	0.49	1.44	68	0.26
	7/12/2005	P	0.2J	<0.2	0.3J	0.8J	*1.3*	3.2	1.4	78.1	0.69	1.43	37J	0.052J
	7/13/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	5.0	0.98	95.8	1.3	0.55	35	0.31J
	7/12/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	5.0	0.43	71.7	2.1	0.74	53J	0.76J
	7/11/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	6.1	<0.040	51.5	5.5	0.8	1600	0.021J
	7/7/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.2	0.2	62.9	0.28	0.53	38	0.25
	7/15/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	5.2	<0.040	57.4	10.2	0.090J	39	1.1
	7/13/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.9	0.061	56.7	4.4U	0.32	43	0.39
	10/16/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	3.7	0.058J	53.4	1.9	<0.09	39	0.71
	10/30/2013	P	3.5	1.1	0.5 J	1.7 J	*6.8*	14	<0.040	12.0	13.3	<0.090	63	10
	10/20/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	7.4	<0.04	38.3	12.1	<0.4	58	1.5
	10/20/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	3.7	0.25	<1.0	63.6	0.1J	7.6J	0.2
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	2.6	0.41J	138	<0.10J	1.1	49	0.064
	10/25/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	3.2	<0.016	0.86J	0.18J	1.1H	51	0.37
RFI-1	3/18/1997	P	<5	<10	<10	<20	*ND*	---	---	---	---	---	---	---
	7/31/2000	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.61	31	0.0148J	1.75	89.15	<0.07
	1/9/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.85	12.4	0.0820J	9.82	11	<0.002
	7/23/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.54	22	0.16	0.0	59	0.003J

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RFI-1	1/17/2002	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	0.34	16.3	<0.0090	3.22	48	<0.0020
	7/19/2002	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.18	27.2	<0.006	3.18	85	0.0088
	1/28/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.12	15.2	0.0078J	5.99	36	<0.002
	7/22/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.91	20	0.040J	2.65	77	0.0045J
	1/16/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	0.25	18.8	0.022J	1.42	71	0.012
	7/20/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	81	0.077J	20	0.021J	0.86	100	<0.0076U
	7/13/2005	P	<0.2	<0.2	0.4J	1.5J	*1.9*	17	0.77	16.2	0.016J	1.57	56J	<0.002
	7/11/2006	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.8	0.21	9.3	<0.0080	1.12	60	<0.0034UJ
	7/12/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	6.3	<0.040	8.5	0.41	0.30J	61J	<0.0024UJ
	7/10/2008	D	---	---	---	---	---	---	<0.040	<10	4.3	0.46	---	---
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	31J	<0.040	<10	4.3	0.4	75	0.091
	7/9/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	6.0	0.98	7.4	0.36J	0.56	27	0.084J
	7/15/2010	D	---	---	---	---	---	---	0.95	8.8	0.46	---	---	---
	7/15/2010	P	0.2	0.2	0.2	0.6	*1.2*	1.3	0.96	8.9	0.46	1.47	49J	0.022J
	7/15/2011	D	---	---	---	---	---	---	<0.040	8.5	2.8	---	---	---
	7/15/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	1.6J	<0.040	8.0	2.8	0.09	61J	0.017UJ
	10/18/2012	D	---	---	---	---	---	---	0.73	<2.5	0.14	0.88	---	---
	10/18/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	2.9	0.72	<2.5	0.14J	0.69	460J	0.16
	11/4/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	10	0.055J	15.5	2.7	1.12	50	0.42
	11/4/2013	D	---	---	---	---	---	---	0.063J	15.4	2.9	---	---	---
	10/24/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	0.6 J	0.33	<2.5	0.2	4.74	21	0.84J
	10/24/2014	D	---	---	---	---	---	---	0.4	< 2.5	0.2	4.89		
	10/23/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	6.5	0.23J	1.1	11.3	1.1	2.3J	0.09J
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	5.0	0.38	8.45	0.12J	1.3	38J	0.15
	10/27/2017	P	1.0U	1.0U	1.0U	2.0U	*ND*	6.2J	<0.016	14.0J	0.0087UJ	1.5H	120	0.06
RFI-2	3/18/1997	P	<0.5	<1	<1	<2	*ND*	---	---	---	---	---	---	---
	7/31/2000	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	4.69	85	0.0207J	3.84	148.35	<0.07
	1/12/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	3.99	57	0.0561J	4.33	68	0.0056
	7/23/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	5.23	53	<0.0090	4.5	95	<0.002
	1/16/2002	P	<0.20	<0.20	<0.20	0.73J	*0.73*	---	2.36	57	<0.0090	5.73	120	0.0039J
	7/17/2002	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	4.89	67	<0.006	4.91	130	<0.002
	1/28/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	2.2	58	<0.006	4.38	100	<0.002
	7/22/2003	P	<0.2	<0.2J	<0.2J	<0.6J	*ND*	---	7.7	43.9	<0.0080	6.77	99	<0.0020
	1/16/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	8.1	42.6	<0.008	5.01	89	<0.002
	7/20/2004	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6.6	41.3	<0.008	5.34	96	<0.002
	7/13/2005	P	<0.2	0.5J	<0.2	<0.6	*0.5*	<0.3	6.2	38.1	<0.008	4.06	58J	<0.002
	7/14/2006	P	<0.2	0.3J	0.6J	4.1	*5.0*	<0.3	6.8	38.2	<0.0080	---	75	<0.0025UJ
	7/11/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6.0	34.8	<0.0080	5.76	96	<0.0020J
	7/10/2008	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	6.3	36.8	<0.0080	5.02	110	<0.0020
	7/9/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	8.5	36.6	0.013	5.77	80	<0.005
	7/15/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	5.0	34.4	<0.010	5.02	51	<0.01
	7/15/2011	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	5.1U	34.6	0.017UJ	6.13	49	<0.0050
	10/18/2012	P	1.3	12	8.1	31	*52.4*	0.8J	2.3	9.8	0.021UJ	4.42	70	0.073
	11/4/2013	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	4.0	19.7	<0.010	0.36J	1100	<0.003
	10/24/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	0.89	4.6J	0.021J	6.21	64	<0.003
	10/23/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	1 U	2.1	3.7	14.3	0.1J	5.9J	< 0.005
	10/18/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	<1.0	1.5	20.2	<0.10J	3.7	130	<0.005

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RFI-2	10/18/2016	D	<1.0	<1.0	<1.0	0.29J	0.29	<1.0	1.5	19.5	<0.10J	1.7	130	<0.005
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	<0.13	6.43J	31.1J	0.11R	4.2H	96	<0.0017
	10/26/2017	D	<0.09	<0.25	<0.30	<0.28	*ND*	1.0U	6.47J	30.8J	0.19R	4.3H	93	<0.0017
RFI-4	3/18/1997	P	410	1500	1500	4300	*7710*	---	---	---	---	---	---	---
	8/1/2000	P	110	270	840	2000	*3220*	---	<0.030	<3	62	4.21	155.47	5.02
	1/17/2001	P	75	140	270	780	*1265*	---	0.35	<15	55	0.08	170	6.1
	7/25/2001	P	65	120	470	620	*1275*	---	<0.040	3.7J	49	0.0	120	7.4
	1/17/2002	P	68	63	600	500	*1231*	---	<0.040	<3.0	64	0.25	190	7.9
	7/19/2002	P	93J	420J	600J	1000J	*2113*	---	<0.04	<1.5	58	2.92	180	7.8
	1/29/2003	P	44	130	160	410	*744*	---	<0.04	<1.5	24	0.64	74	5.1
	7/23/2003	P	110	260	960	1600	*2930*	---	<0.040	<1.5	50.8	0.18	110	8.8
	1/19/2004	P	40	77	260	360	*737*	---	<0.04	<1.5	20.6	0.08	67	5.9
	7/21/2004	P	39	60	360	350	*809*	<1.5	<0.04	<1.5	36	1.63	450	6.1
	1/13/2005	P	17	25	84	140	*266*	<10	---	---	---	---	---	---
	7/13/2005	P	21J	37J	48J	240J	*346*	<10	<0.04	<3	54.8	<0.09	110J	5J
	1/17/2006	P	6.6	6	22	14	*48.6*	<0.3	---	---	---	---	---	---
	7/14/2006	P	4.4	11	34	48	*97.4*	12	0.42	<7.1U	10.9	0.18J	62	2.1J
	1/10/2007	P	0.5J	1.5	6	7.6	*15.6*	1.4J	---	---	---	---	---	---
	7/12/2007	P	12	17	54	64	*147*	<20	<0.040	<5.0	18.3	2.39	62J	5J
	1/9/2008	P	12	14	8.9	54	*88.9*	<20	---	---	---	---	---	---
	7/8/2008	P	21	71	39	260	*391*	<40	<0.040	<2.5	47.5	0.2	110	11
	1/8/2009	P	0.4	0.4	0.4	1.5	*2.7*	<0.3	---	---	---	---	---	---
	7/8/2009	P	22	58	170	430	*680*	<30	<0.04	<2.5	56.8	<0.09	130	11
	1/6/2010	P	0.3J	0.3J	0.6J	<0.6	*1.2*	<1.0	---	---	---	---	---	---
	7/14/2010	P	25	88	210	730	*1053*	30	<0.040	<5.0	45.2	<0.090	93	9.4
	4/5/2011	P	6.3	14	12	33	*65.3*	1.3J	---	---	---	---	---	---
	7/13/2011	P	25	54	110	350	*539*	<50	<0.040	<5.0	47.2	0.93	120	5.1
	1/19/2012	P	2.9	4.1	5.6	16	*28.6*	8.9	---	---	---	---	---	---
	10/18/2012	P	31	89	150	660	*930*	73	<0.04	<2.5	30.1	<0.09	110	11
	1/16/2013	P	24 J	28 J	20 J	80 J	*152*	66 J	---	---	---	---	---	---
	5/14/2013	P	24	78	170	460	*732*	<58	---	---	---	---	---	---
	10/31/2013	P	44	150	300	1400	*1894*	140	<0.040	<5.0	58.6	<0.090	150	14
	1/28/2014	P	33	61	110	360	*564*	<100	---	---	---	---	---	---
	4/16/2014	P	10	12	23	38	*83*	<31	---	---	---	---	---	---
	10/21/2014	P	39	100	240	1100	*1479*	<89	<0.04	<5	46.3	0.75	130	13
	4/22/2015	P	7.7	63	150	610	830.7	2 U	---	---	---	---	---	---
	10/20/2015	P	13	81	130	1100	1324	0.77 J	0.042 J	< 1	< 0.6	28.8	23J	6.4
	4/22/2016	P	12	95	180	810	1097	0.88J	---	---	---	---	---	---
	10/18/2016	P	18	75	25	210	328	0.34J	<0.10	2.33	0.48J	<1.0	15	12
	4/28/2017	P	10	100	430	740	1280	0.40 J	---	---	---	---	---	---
	10/26/2017	P	14	120	480	1400	2014	<0.65	<0.016	<0.33	0.12R	<1.0H	150	9.8
RFI-6	3/21/1997	P	6800	19000	3400	17000	*46200*	---	---	---	---	---	---	---
	8/1/2000	P	4400	6600	2800	13000	*26800*	---	<0.030	<3	27.6	1.3	125.9	6.49
	1/9/2001	P	4000	8200	2800	12000	*27000*	---	0.3	<6.0	22.3	1.28	93	7.2
	7/24/2001	P	3200	5800	2300J	9800J	*21100*	---	<0.040	<3.0	26	0	95	9.9
	1/17/2002	P	3300	5400	2400	11000	*22100*	---	<0.040	<1.5	26	0.1	110	9.9
	7/23/2002	D	5300	6900	2900	13000	*28100*	---	<0.04	<3	23	---	110	16

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RFI-6	7/23/2002	P	4800	6300	2700	12000	*25800*	---	<0.04	<3	23.5	2.81	110	17
	1/31/2003	P	1200	310	1400	3600	*6510*	---	<0.04	3.2J	15.3	0.11	140	3.3
	7/23/2003	P	2600	280	1000	3500	*7380*	---	<0.040	4.6J	11.2	0.3	170	3
	1/20/2004	P	2600	200	1800	2900	*7500*	---	<0.04	<3	14	0.11	130	7.1
	7/23/2004	P	1300	30	800	390	*2520*	59	<0.04J	<1.5J	17.3J	0.81	160	4.5
	1/13/2005	P	1100	40	520	200	*1860*	56	---	---	---	---	---	---
	7/14/2005	P	1700	81	960	290	*3031*	160	<0.04	<1.5	16.4	<0.09	100J	6.0J
	1/20/2006	P	140	3.7	5.5	6.1	*155.3*	51	---	---	---	---	---	---
	7/13/2006	P	660	10	37	11	*718*	54	<0.040	<3.9U	8.5	<0.090	93	5.1J
	1/11/2007	P	1800	120	210	160	*2290*	110	---	---	---	---	---	---
	10/3/2007	P	2300	46	33	<15	*2379*	190J	---	---	---	---	---	---
	1/10/2008	P	940	25	15	36	*1016*	65	---	---	---	---	---	---
	7/9/2008	P	2200	100	67	110	*2477*	<50	<0.040	<2.5	9.7	<0.090	150	8.9J
	1/6/2009	P	1300	7.4	33	22	*1362.4*	18	---	---	---	---	---	---
	7/9/2009	P	1000	18	4.5	10	*1032.5*	15	<0.04	3.8	11.1	<0.09	120	4.1
	1/5/2010	P	1200	56	14	130	*1400*	<50	---	---	---	---	---	---
	7/15/2010	P	1800	470	790	3300	*6360*	76	<0.040	<5.0	10.8	<0.090	98	8.5
	1/13/2011	P	560	84	81	320J	*1045*	22	---	---	---	---	---	---
	7/14/2011	P	720	14	74	23	*831*	49	<0.040	<5.0	4.3	0.11	150	3.6
	1/18/2012	P	670	76	130	300	*1176*	47	---	---	---	---	---	---
	10/17/2012	P	700J	77J	13J	42J	*832*	47J	<0.04	<2.5	12.1	<0.09	140	12
	1/15/2013	P	300	27	5.8	34	*366.8*	23	---	---	---	---	---	---
	5/17/2013	P	250	49	43	60	*402*	<0.3	---	---	---	---	---	---
	10/31/2013	P	570	78	15	53	*716*	<49	<0.040	<2.5	7.5	1.27	130	12
	1/30/2014	P	920	89	150	840	*1999*	<46	---	---	---	---	---	---
	4/17/2014	P	140	3.5	3.5	5.2	*152.2*	<9	---	---	---	---	---	---
	10/24/2014	P	310	39	7.1	31	*387.1*	<22	<0.04	<2.5	7.9	0.54	130	7.6
	4/23/2015	P	150	25	16	38	229	4.6	---	---	---	---	---	---
	10/22/2015	P	450	67	19	100	636	17	<0.1	<1.0	<0.6	0.1J	24J	4.8J
	4/22/2016	P	110	3.9	2.1	3.4	119.4	5.9	---	---	---	---	---	---
	10/18/2016	P	1900	340	420	1400	4060	32	0.016J	0.60	<0.10J	<1.0	140	10
	4/27/2017	P	140	2.0	0.79J	4.2	146.99	3.9	---	---	---	---	---	---
	10/27/2017	P	150	24	44	26	244	5.9	<0.016	1.01	0.0087UJ	<1.0H	120	5.1
RFI-7	3/20/1997	P	12	1100	420	2000	*3532*	---	---	---	---	---	---	---
	8/1/2000	P	<3.7J	<1.2J	<1.4J	<5.7J	*ND*	---	<0.030	<6	28	4.82	97.83	5.61
	10/7/2008	P	2.8	0.3	1.0	0.9	*5.0*	<10	---	---	---	---	---	---
	1/7/2009	P	3.2	<0.2	1.1	1.0	*5.3*	5.5	---	---	---	---	---	---
	4/7/2009	P	3.4	1.2	0.5	1.6	*6.7*	5.5	---	---	---	---	---	---
	7/9/2009	P	3.1	1.1	0.3	1.3	*5.8*	11	<0.04	<5	23.9	<0.09	60	5.7
	4/6/2010	P	4.0	1.4	0.4J	1.2J	*7.0*	15	---	---	---	---	---	---
	7/15/2010	P	3.0	1.3	0.4J	1.5J	*6.2*	<5.0	<0.040	<10.0	32	<0.090	55	10
	10/5/2010	P	2.6	1.2	0.5J	1.6J	*5.9*	<10	---	---	---	---	---	---
	4/5/2011	P	4.0	1.4	0.2	1.1	*6.7*	<10	---	---	---	---	---	---
	7/14/2011	P	4.0	1.0	0.3	1.2	*6.5*	<10	<0.040	<5.0	23.6	<0.090	41	6.3
	10/25/2011	P	1.6	0.9	0.4	1.8	*4.7*	7.5	---	---	---	---	---	---
	1/19/2012	P	3.5	1.1	0.4J	1.5J	*6.5*	9.5	---	---	---	---	---	---
	4/10/2012	P	3.9	1.2	0.8J	2.9J	*8.8*	7.1	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RFI-7	10/17/2012	P	3.6	0.9J	0.3J	1.3J	*6.1*	5.6	<0.04	<5	26.6	<0.09	83	11
	1/16/2013	P	3.6	1.1	0.6J	2.2J	*7.5*	10	---	---	---	---	---	---
	5/16/2013	P	4.9	0.9J	0.5J	1.4J	*7.7*	7.6	---	---	---	---	---	---
	7/24/2013	P	5.9	1.1	0.4J	1.6J	*9.0*	<8	---	---	---	---	---	---
	11/1/2013	P	6.0	1.2	0.4J	1.5J	*9.1*	7.0	<0.040	<5.0	28.3 U	<0.090	90	14
	7/24/2014	P	9.0	1.6	0.6J	1.7	*12.9*	<8	---	---	---	---	---	---
	10/23/2014	P	10	1.8	0.6J	1.5	*13.9*	<12	<0.04	<5	28.4	<0.4	84	11
	2/3/2015	P	11J	1.9	0.11J	0.62J	13.63	1 U	---	---	---	---	---	---
	4/23/2015	P	7.7	1.8	<1.0	0.66	10.16	1 U	---	---	---	---	---	---
	7/22/2015	P	7.1	1.7	<1.0	0.64J	9.44	1 U	---	---	---	---	---	---
	10/23/2015	P	6.5	2.3	<1.0	0.47J	9.27	1 U	< 0.1	< 1	1.12	8.7	11J	6.7
	1/20/2016	P	6.2	2.4	<1.0	0.73J	9.33	<1.0	---	---	---	---	---	---
	4/22/2016	P	6.0	2.4	<1.0	0.67J	9.07	<1.0	---	---	---	---	---	---
	7/21/2016	P	6.4	2.5	<1.0	0.62J	9.5	<1.0	---	---	---	---	---	---
	4/28/2017	P	5.7	3.6	<0.30	1.1J	10.4	<0.13	---	---	---	---	---	---
	7/26/2017	P	4.3	2.8	<0.30	1.1J	8.2	<0.13	---	---	---	---	---	---
RFI-8	3/24/1997	P	1400	240	1100	4800	*7540*	---	---	---	---	---	---	---
	8/1/2000	P	660	<53	610	1900	*3170*	---	<0.030	<6	52	0.58	136.6	9.61
	1/10/2001	P	1000	<67	610	2800	*4410*	---	0.062J	<6.0	74	0.0	220	9.9
	7/24/2001	P	1400J	83J	780	3400J	*5663*	---	<0.20	<7.5	62	7.83	260	11
	1/16/2002	D	380	21	140	900	*1441*	---	<0.040	<6.0	52	---	170	14
	1/16/2002	P	370	22	140	890	*1422*	---	<0.040	<3.0	52	0.0	160	15
	7/18/2002	P	930J	41	410J	1600J	*2981*	---	<0.04	<6.0	65	0.0	260	13
	1/29/2003	P	2600	170	1300	6200	*10270*	---	<0.04	<1.5	91	0.07	220	18
RFI-8R	8/21/2003	P	59	14	190	500	*763*	27	---	---	---	---	---	---
	1/21/2004	D	41	10	150	170	*371*	---	<0.04	29.2	41.2	---	96	10
	1/21/2004	P	42	9.5	160	170	*381.5*	---	<0.04	<6.0	41.5	0.19	93	11
	4/16/2004	P	38	9.5	230	240	*517.5*	31	---	---	---	---	---	---
	7/22/2004	D	18J	5.6J	63J	65J	*151.6*	74J	<0.04J	<3.0	33.4	---	98J	8.9J
	7/22/2004	P	25J	7.1J	80J	82J	*194.1*	110J	<0.04J	<3.0	33.3	0.46	92J	8.1J
	10/5/2004	P	19	5.3J	46	36	*106.3*	81	---	---	---	---	---	---
	1/12/2005	P	26	6.6J	33	47	*112.6*	<50	---	---	---	---	---	---
	4/13/2005	P	18.8	6.6	95.3	79	*199.7*	21.2	---	---	---	---	---	---
	7/12/2005	D	14	4.1	13	16	*47.1*	<50	<0.4	<3.0	32.8	<0.09	63J	5.2J
	7/12/2005	P	17	5.4	4.1J	19	*45.5*	<50	<0.04	<7.5	33.2	<0.09	62J	4.9J
	10/27/2005	P	17	3.3	12	9.4	*41.7*	58	---	---	---	---	---	---
	1/19/2006	P	32	7.5	8.0	33	*80.5*	<50	---	---	---	---	---	---
	7/12/2006	P	15	4.0	14	<10	*33*	32	<0.040	<3.0	33.5	0.10J	74	6.5J
	1/11/2007	P	14	4.8	14	9.1	*41.9*	28	---	---	---	---	---	---
	7/12/2007	P	18	4.7	9.2	7.7	*39.6*	<50	<0.040	<10.0	29.2	<0.090	68J	6.3J
	1/10/2008	P	16	4.5J	7.3	8.5J	*36.3*	<50	---	---	---	---	---	---
	7/11/2008	P	17	11	6.7	11	*45.7*	33	<0.040	<5.0	27.8	<0.090	75	7.2J
	1/7/2009	P	14	4.0	3.7	4.7	*26.4*	26	---	---	---	---	---	---
	7/8/2009	P	16	4.8	7.5	10	*38.3*	<30	<0.04	<10	27.1	<0.09	53	7.4
	1/6/2010	P	8.4	2.3	2.1	3.3	*16.1*	<20	---	---	---	---	---	---
	7/14/2010	P	10	4.1	3.0	6.0	*23.1*	<50	<0.040	<5.0	25.2J	0.7	46	4.7
	1/13/2011	P	7.3	2.4	2.7	4.1J	*16.5*	<20	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RFI-8R	7/13/2011	P	10	3.0	4.0	4.8	*21.8*	<50	<0.040	<5.0	24.5U	<0.090	130	4.5
	1/19/2012	P	8.5	2.7	6.6	3.4	*21.2*	31	---	---	---	---	---	---
	10/16/2012	P	6.8	2.6	1.7	4.4	*15.5*	22	0.054J	5.9J	17.4UJ	<0.09	60	6.0
	1/16/2013	P	4.4	1.4	1.2	1.7 J	*8.7*	17	---	---	---	---	---	---
	5/15/2013	P	7.8	2.0	10	5.3	*25.1*	<0.3	---	---	---	---	---	---
	10/30/2013	P	7.8 J	3.0 J	2.7 J	4.8 J	*18.3*	<44	<0.040	<5.0	27.7	<0.090	80	5.3
	1/29/2014	P	4.1	1.7	1.8	2.9	*10.5*	18	---	---	---	---	---	---
	4/15/2014	P	6.5	2.4	4.4	3.8	*17.1*	<23	---	---	---	---	---	---
	10/20/2014	P	<4	1.4	1.2	2.5	*5.1*	<20	0.35	13.2	13.7	0.93	48	5.1
	4/21/2015	P	2.3	0.92 J	2.7	0.97 J	6.89	0.71 J	---	---	---	---	---	---
	10/20/2015	P	0.58 J	0.49 J	0.31 J	0.66 J	2.04	1.3	0.37 J	2.0	14.8 J	0.57	4.7J	1.6J
	4/21/2016	P	0.59J	0.27J	0.39J	0.30J	1.55	1.2	---	---	---	---	---	---
	10/19/2016	P	3.2	0.71J	0.40J	0.87J	5.18	4.4	0.058J	9.09	0.16J	<1.0	45J	3.3J
	4/25/2017	P	1.5	0.45J	0.76J	<0.28	2.71	0.79J	---	---	---	---	---	---
	10/25/2017	P	1.4	0.30J	<0.30	0.30J	2.0	1.6	0.73J	14.9J	0.0087UJ	<1.0H	38	4.6
RFI-9	3/26/1997	P	12	10	12	20	*54*	---	---	---	---	---	---	---
	8/2/2000	P	210	<9.5	130	320	*660*	---	<0.030	58	1.9	3.02	14.69	2.03
	1/16/2001	P	2.8	0.29J	2.4	5.8	*11.29*	---	0.56	54	0.79	0.0	6.3	0.013
	7/26/2001	P	31	1.1	30	12	*74.1*	---	<0.040	42	0.21	0.0	3.3J	1.9
	1/18/2002	P	1.0	<0.20	0.95J	3.9	*5.85*	---	1.65	91	0.0255J	0.0	2.2J	0.0056
	7/19/2002	P	8.7	<0.32J	1.8	0.82J	*11.32*	---	<0.04	59	0.46	2.82	17	0.79
	1/28/2003	P	42	0.8J	14	17	*73.8*	---	0.05J	31.7	0.13	0.85	<1.5	1.5
	7/23/2003	P	220	3.0	37	75	*335*	---	0.39	42.1	0.081J	0.48	<1.5	3.8
	1/20/2004	P	15	0.4J	7.2	15	*37.6*	---	0.19	21.8	0.034J	1.06	<1.5	1.1
	7/22/2004	P	110J	1.8J	38J	56J	*205.8*	67J	0.16J	38.5	0.067J	0.65	<1.5J	3.7J
	7/12/2005	P	120	3.4	39	140	*302.4*	57	<0.04	38.2	0.2	2.33	<1.5J	3.1J
	7/13/2006	P	79	1.3	25	52	*157.3*	29	0.17	45.2	0.073J	1.02	<2.5	4.7J
	7/13/2007	P	58	0.8J	36	37	*131.8*	17	0.12	45.7	---	---	<2.5	3.4J
	7/11/2008	P	34	11	0.9	6.1	*52*	8.6	<0.040	51.3	0.14	0.87	<4.0	2.0J
	7/7/2009	P	30	0.5	7.7	2.8	*41*	6.2	<0.04	31.7	0.14	1.23	<4.0	2.3
	7/14/2010	P	8.8	0.2J	2.3	0.8J	*12.1*	2.7	0.079J	39.6	0.053J	2.34	<4.0	0.56
	7/13/2011	P	17	0.4	7.3	1.1	*25.8*	2.7	<0.040	25.2	0.096UJ	3.0	<4.0	1.7
	10/16/2012	P	<0.2	<0.2	<0.2	<0.6	*ND*	<0.3	<0.04	15.1	0.38	1.52	7.0J	0.015J
	10/20/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	<0.3	0.63	21.9	0.048J	1.76	8.9J	<0.003
	10/20/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	0.40J	0.037J	3.0	27.3	0.1J	1,200J	< 0.005
	10/19/2016	P	0.14J	<1.0	<1.0	<2.0	0.14	0.56J	0.029J	10.7	<0.10J	<1.0	5.0	0.74
	10/25/2017	P	1.1	<0.25	<0.30	<0.28	1.1	0.80J	<0.016	6.74	0.0087UJ	1.1H	5.0	3.0
RFI-11	3/20/1997	P	<0.5	<1.0	<1.0	<2.0	*ND*	---	---	---	---	---	---	---
	8/1/2000	P	<1.0	<1.2	<4.8	<45	*ND*	---	<0.030	32	0.0407J	5.37	106.27	0.42
	1/24/2001	P	<0.20	<0.20	<0.20	<0.60	*ND*	---	<0.015	33.8	0.076J	0.0	120	0.078
	7/24/2001	P	<0.20	0.41J	0.37J	1.7J	*2.48*	---	<0.040	35.1	0.0269J	0.0	130	0.12
	1/17/2002	P	<0.20	<0.20	<0.20	4.4	*4.4*	---	<0.040	35	0.0275J	0.0	120	0.12
	7/25/2002	P	<0.2	<0.2	0.28J	0.63J	*0.91*	---	<0.04	38.5	0.0906J	4.91	120	0.13
	1/29/2003	P	<0.2	<0.2	<0.2	<0.6	*ND*	---	<0.04	37.5	0.0309J	0.66	100	0.083
	7/24/2003	P	0.2J	0.8J	1.1	5.8	*7.9*	---	<0.04	37.2	0.15	3.15	110	0.091
	2/5/2004	P	0.2J	<0.2	<0.2	0.9J	*1.1*	---	<0.04	34.8	0.26	0.4	110	0.073
	7/21/2004	P	<0.2	<0.2	<0.2	0.9J	*0.9*	180	<0.04	39	0.12	3.22	110	0.092

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RFI-11	7/13/2005	P	<0.2	<0.2	<0.2	<0.6	*ND*	140	<0.04	34.8	0.079J	1.14	79J	0.059J
	7/12/2006	P	<0.2	<0.2	<0.2	6.4	*6.4*	120	<0.040	33.4	0.12	1.27	76	0.11J
	7/10/2007	P	<0.2	<0.2	<0.2	<0.6	*ND*	92	<0.040	29.7	0.16	1.0	94	0.084J
	7/8/2008	P	<0.2	<1.0	<0.2	<0.6	*ND*	80	<0.040	32.4	0.53	0.38	97	0.10
	7/8/2009	P	<0.2	<0.2	<0.2	<0.6	*ND*	73	<0.04	32.4	0.18	1.08	64	0.089
	7/15/2010	P	<0.2	<0.2	<0.2	<0.6	*ND*	66	<0.040	30.2	0.24	0.69	63	0.064
	10/17/2012	P	<0.2	<0.2	3.8	<0.6	*3.8*	54	<0.04	28.2	<0.01	1.37	84	0.058
	11/1/2013	P	<0.2	<0.2	3.1	<0.6	*3.1*	38	<0.040	30.7	0.30 U	0.53	88	0.087
	10/23/2014	P	<0.2	<0.2	<0.2	<0.2	*ND*	38	<0.04	31.4	0.13	0.76	80	0.079
	10/21/2015	P	<1.0	<1.0	<1.0	<2.0	*ND*	31	<0.10	1.2	30.5	0.074J	11	0.073
	10/20/2016	P	<1.0	<1.0	<1.0	<2.0	*ND*	2.6	<0.10	28.8	0.16J	<1.0	260	0.087
	10/26/2017	P	<0.09	<0.25	<0.30	<0.28	*ND*	27	<0.016	28.1	0.16R	1.1H	100	0.11
RW-1A	1/29/2003	P	100	26	18	27	*171*	71	<0.04	<1.5	6.3	0.25	42	4.2
	7/23/2003	P	5700	8400	2300	7200	*23600*	<100	<0.040	<1.5	24.5	3.19	82	20
	2/3/2004	P	8100	5600	2200	7400	*23300*	<30	<0.04	<3	33.9	0.24	100	24
	4/16/2004	P	6500	3800	1900	6200	*18400*	<50	---	---	---	---	---	---
	7/22/2004	D	8500J	3500J	2200J	6400J	*20600*	220J	<0.04J	<3	37.3	---	98J	21J
	7/22/2004	P	7900J	3200J	2000J	5900J	*19000*	250J	<0.04J	<1.5	36	0.86	93J	20J
	10/5/2004	P	10000	4300	2500	7400	*24200*	<100	---	---	---	---	---	---
	1/14/2005	P	6800	1500	1400	4900	*14600*	<100	---	---	---	---	---	---
	4/12/2005	P	2790	387	587	2510	*6274*	<2.8	---	---	---	---	---	---
	7/11/2005	P	6200	1500	1700	5700	*15100*	<100	<0.04	<6	44.1	<0.09	92J	21J
	10/26/2005	D	330	15	22	140	*507*	15	---	---	---	---	---	---
	10/26/2005	P	330	15	23	140	*508*	15	---	---	---	---	---	---
	1/18/2006	D	3700	690	770	3300	*8460*	<50	---	---	---	---	---	---
	1/18/2006	P	3600	690	740	3200	*8230*	<50	---	---	---	---	---	---
	4/11/2006	D	4300	1300	1300	4900	*11800*	<200	---	---	---	---	---	---
	4/11/2006	P	4400	1400	1300	5100	*12200*	<200	---	---	---	---	---	---
	7/14/2006	D	---	---	---	---	---	---	<0.040	<6.0	31.4	<0.090	---	---
	7/14/2006	P	3500	540	1600	5200	*10840*	<100	<0.040	<6.0	34.1	<0.090	80	17J
	10/10/2006	D	3200	620	1500	4200	*9520*	<1200	---	---	---	---	---	---
	10/10/2006	P	3300	640	1500	4400	*9840*	<1300	---	---	---	---	---	---
	1/9/2007	D	3300	720	1300	3800	*9120*	<2000	---	---	---	---	---	---
	1/9/2007	P	3300	690	1300	3600	*8890*	230J	---	---	---	---	---	---
	4/3/2007	D	2000	200	550	2100	*4850*	<1000	---	---	---	---	---	---
	4/3/2007	P	2000	210	580	2100	*4890*	<1000	---	---	---	---	---	---
	7/12/2007	D	---	---	---	---	---	---	<0.040	<5.0	33.3	0.4	---	---
	7/12/2007	P	1800	120	<1.0	3100	*5020*	160	<0.040	<10.0	32.4	2.62	93J	16J
	10/3/2007	D	5200	770	1600	3700	*11270*	180J	---	---	---	---	---	---
	10/3/2007	P	4400	760	1700	4000	*10860*	140J	---	---	---	---	---	---
	1/8/2008	D	1800	410	290	1600	*4100*	<200.	---	---	---	---	---	---
	1/8/2008	P	1800	410	270	1500	*3980*	<100	---	---	---	---	---	---
	4/8/2008	P	820	220	84	360J	*1484*	130	---	---	---	---	---	---
	7/10/2008	P	2400	1300	300	2700	*6700*	<300	<0.040	<5.0	37.2	---	98	28
	10/7/2008	D	2700	900	270	1800	*5670*	<50	---	---	---	---	---	---
	10/7/2008	P	2300	710	250	1500	*4760*	<250	---	---	---	---	---	---
	1/7/2009	P	1200	140	110	330	*1780*	110	---	---	---	---	---	---

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

			BTEX (ug/L)						TEAP Parameters (mg/L)					
Location	Date	Type	Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*	MTBE (ug/L)	Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane
RW-1A	4/7/2009	P	510	41	38	65	*654*	90	---	---	---	---	---	---
	7/9/2009	P	2200	1100	280	720	*4300*	<120	<0.04	<10	34.4	<0.09	54	8.6
	10/6/2009	P	3200	290	540J	1100	*5130*	<150	---	---	---	---	---	---
	1/6/2010	P	1700	410	25	360	*2495*	<100	---	---	---	---	---	---
	4/6/2010	P	110	9.2	8.5	15	*142.7*	30	---	---	---	---	---	---
	7/15/2010	P	3400	550	910	2700	*7560*	<100	<0.040	<10.0	40.1	<0.090	62	26
	10/5/2010	D	2500	920	360	2000	*5780*	<200	---	---	---	---	---	---
	10/5/2010	P	2500	900	350	1900	*5650*	<200	---	---	---	---	---	---
	1/11/2011	P	1000	120	28	820	*1968*	110	---	---	---	---	---	---
	4/5/2011	P	310	17	8.7	37	*372.7*	50J	---	---	---	---	---	---
	7/14/2011	P	2900	370	660	1500	*5430*	<1000	<0.040	<2.5	31.2	0.1	72	26
	10/25/2011	P	3500	380	570	940	*5390*	<1.5	---	---	---	---	---	---
	1/19/2012	P	2700	300	290	870	*4160*	<980	---	---	---	---	---	---
	4/10/2012	P	3200	400	210	1300	*5110*	<130	---	---	---	---	---	---
	7/20/2012	P	1900	150	92	370	*2512*	120	---	---	---	---	---	---
	10/17/2012	P	2600	220	76	460	*3356*	180	<0.04	<5	35.2	<0.09	98	28
	1/16/2013	P	830	53	11	87	*981*	150	---	---	---	---	---	---
	5/16/2013	P	550	33	41	43	*667*	150	---	---	---	---	---	---
	7/23/2013	P	1800	210	85	210	*2305*	<150	---	---	---	---	---	---
	11/1/2013	P	2200	270	210	700	*3380*	<240	<0.040	<2.5	33.5 U	<0.090	95	30
	1/29/2014	P	590	60	11	120	*781*	86	---	---	---	---	---	---
	4/16/2014	P	69	4.8	8.7	7.3	*89.8*	<14	---	---	---	---	---	---
	7/23/2014	P	1500	530	250	730	*3010*	<89	---	---	---	---	---	---
	10/23/2014	P	1900	210	320	950	*3380*	<220	<0.04	<5	28.1	<0.4	83	27
	1/30/2015	P	500 J	40	4.4	100	644.4	33	---	---	---	---	---	---
	4/22/2015	P	550	33	20	31	634	23	---	---	---	---	---	---
	7/21/2015	P	1,800	110	230	470	2,610	8.0	---	---	---	---	---	---
	10/22/2015	P	2,300	150	77	490	3,017	6.7	< 0.1	< 1	0.6	2.2	16J	14
	1/19/2016	P	410	11	8.6	21	451	3.3	---	---	---	---	---	---
	4/20/2016	P	52	1.1	<1.0	4.3	57	47	---	---	---	---	---	---
	7/21/2016	P	440	11	6.3	5.8	463	34	---	---	---	---	---	---
	10/19/2016	P	1,500	90	70	150	1,810	11	<0.10	0.64	0.21J	<1.0	110	14
	1/20/2017	P	27	0.37J	<0.30	<0.28	27.37	0.75J	---	---	---	---	---	---
	4/25/2017	P	41	1.7	1.4	0.61J	44.71	4.2	---	---	---	---	---	---
	7/27/2017	P	1,700	1100	380	960	4,140	7.7	---	---	---	---	---	---
	10/26/2017	P	2,100	220	440	640	3,400	<0.65	<0.016	<0.33	22.3J	<1.0H	84	26

Bold results indicate constituent detected above laboratory reporting limit.

Notes

(1) L-20 is not an MNA program well; however, it was inadvertantly sampled during the April 2008 event instead of L-34. Results from L-20 are therefore presented here.

Definitions

BTEX = Benzene, Toluene, Ethylbenzene, and total Xylenes
mg/L = Milligrams per liter
ug/L = Micrograms per liter
MNA = Facility-wide Monitored Natural Attenuation and hotspot/perimeter monitoring program
MTBE = Methyl tert-butyl ether
ND = Not Detected (total BTEX)
"---" = Not sampled for this parameter.
TEAP = Terminal electron acceptor/product
P = Primary sample
D = Duplicate Sample

Appendix C-1
Historical MNA Groundwater Monitoring Results
BTEX, MTBE, and TEAP Parameters
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

Location	Date	Type	BTEX (ug/L)					MTBE (ug/L)	TEAP Parameters (mg/L)					
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	*Total BTEX*		Nitrate	Sulfate	Ferrous Iron	Dissolved Oxygen	Carbon Dioxide	Methane

Data Qualifiers

"<" = Indicates that this parameter was not detected at a concentration equal to above the laboratory detection limit indicated.

J = The associated numerical value is an estimated quantity.

UJ = Result qualified as non-detect at the estimated value indicated, based on data validation.

U = Result qualified as non-detect based on data validation (e.g., compound was detected in a blank sample).

R = Result rejected by data validation.

Appendix C-2: PAHs and Lead

Appendix C-2
Historical MNA Groundwater Monitoring Results
PAHs and Lead
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

				Polycyclic Aromatic Hydrocarbons (ug/L)																		
Location	Date	Total or Diss	Type	Acenap-hthene	Acenaph-thylene	Anthra-cene	Benzo(a) anthra-cene	Benzo(a) pyrene	Benzo(b) fluoran-thene	Benzo (g,h,i) perylene	Benzo(k) fluoran-thene	Chrysene	Dibenzo (a,h)anth-racene	Fluoran-thene	Fluorene	Indeno (1,2,3-cd) pyrene	1-Methyl naptha-lene	2-Methyl naptha-lene	Naphtha-lene	Phenan-threne	Pyrene	Lead (mg/L)
I-2	3/20/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	<0.5	23J	27	43	<1	<0.5	0.0015B
I-3	3/20/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	7.6J	2.8	17	<1	<0.5	0.0019B
	8/1/00	Total	P	<0.76	90.6	<0.028	<0.019	<0.019	<0.036	<0.095	<0.0095	<0.057	<0.028	<0.028	<0.16	<0.064	27J	18J	<3.02J	<0.066	<0.16	<0.0098
	7/24/01	Total	P	2.3J	100	0.2	<0.02	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	<0.030	<0.20	<0.060	28	41	3.4J	0.26J	<0.2	<0.0088
	7/24/01	Total	D	<0.8	<0.8	<0.030	<0.02	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	<0.030	<0.20	<0.060	26	35	3.3J	0.23J	<0.20	<0.0088
	7/17/02	Total	P	<0.8	10	<0.04	<0.02	<0.02	<0.04	<0.1J	<0.02	<0.08	<0.04J	<0.04	1.6	<0.08	26	30	3.2J	<0.08	<0.2	<0.0089
	7/22/03	Total	P	<17	2.2J	0.046J	<0.021	<0.021	<0.041	<0.10J	<0.021	<0.083	<0.041J	<0.041	0.30J	<0.083	<3.1	<3.1	<1.2	<0.083	<0.19	<0.0093
	3/7/12	Total	P	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.1J	<0.09	0.4J	0.1J	0.2J	0.2J	0.1J	---
	3/7/12	Diss	P	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---
	3/7/12	Total	D	0.1J	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1J	<0.1	0.3J	0.1J	0.2J	0.2J	0.1J	---
	3/7/12	Diss	D	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1J	<0.1	<0.1	<0.1	<0.1	---
I-5	3/18/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.9J	<0.5	85J	66J	230J	1.1J	<0.5	0.0018B
	7/31/00	Total	P	<0.76	33.7	<0.028	<0.019	<0.019	<0.036	<0.095	<0.0095	<0.057	<0.028	<0.028	0.77	<0.064	14J	19J	44.3	0.29	<0.16	---
	7/26/01	Total	P	<0.7	42	<0.030	<0.02	<0.02	<0.040	<0.09	<0.009	<0.06	<0.030	<0.030	1.6	<0.060	20	28	83	0.5	<0.20	---
	7/18/02	Total	P	3J	24	<0.04	<0.02	<0.02	<0.04	<0.09	<0.02	<0.08	<0.04	<0.04	2.3	<0.08	34	48	200	0.37J	<0.2	---
	7/18/02	Total	D	2.1J	21	<0.04	<0.02	<0.02	<0.04	<0.09	<0.02	<0.08	<0.04	<0.04	1.8	<0.08	30	38	150	0.36J	<0.2	---
	7/22/03	Total	P	15J	20	0.24	<0.019	<0.019	<0.039	<0.097J	<0.019	<0.077	<0.039J	0.042J	2.9	<0.077	37	56	230	0.86	<0.17	---
I-6	3/18/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	9.6	<0.5	450	810	1200	8.5	5.5	0.0495
	7/31/00	Total	P	<1.7J	<47J	1.28	0.046J	<0.019	<0.037	<0.097	<0.0097	<0.058	<0.029	0.136J	<0.17	<0.065	150J	370J	<820	<0.068	1.55	0.0334
	7/18/02	Total	P	1.4J	43	1.1	0.039J	<0.02	<0.04	<0.09	<0.02	0.15J	<0.04	0.21	2.8	<0.08	88	240	550	1.4	<0.2	---
	7/22/03	Total	P	41	33	0.94	0.061J	<0.020	<0.040	<0.10J	<0.020	0.11J	<0.040J	0.28	3.9	<0.081	95	230	580	2.3	0.73J	---
ICM-1	12/12/95	Total	P	36	<20	15	1.7	0.48	0.52	<0.76	0.25	2.9	<0.3	18	24	<0.43	42	<18	23	25	<2.7	0.023
	7/26/00	Total	P	2.2J	1.98J	1.15	0.021J	<0.020	<0.038	<0.100	<0.010	<0.060	<0.030	1	<0.17	<0.067	<2	<2	1.35J	<0.070	0.86	<0.0098
	7/24/01	Total	P	3.0J	<0.8	0.3	0.04J	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	0.9	1.1	<0.060	6.8J	3.9J	4.1J	0.26J	2	<0.0088
	7/18/02	Total	P	6.1J	3.3J	0.8	0.14	0.057J	0.086J	<0.09	0.023J	<0.08	<0.04	1.2	1.7	<0.08	12	<0.8	6J	0.51	<0.2	<0.0129UJ
	3/7/12	Total	P	13	<1	4J	<1	<1	<1	<1	<1	<1	<1	4J	17	<1	72	42	<1	16	8	---
	3/7/12	Diss	P	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	<0.1	41	26	<0.1	<0.1	<0.1	---
ICM-2	12/12/95	Total	P	<1.8	<2.3	<0.66	0.063	0.035	0.027	<0.076	<0.017	0.29	<0.030	<0.21	<0.21	<0.043	<1.8	<1.8	<1.8	<0.64	<0.27	0.0149
	8/2/00	Total	P	<0.76	<0.76	0.69	0.02J	<0.019	<0.036	<0.095	<0.0095	0.079J	<0.028	0.137J	0.18J	<0.063	0.6J	0.7J	<0.76	0.197J	2.12	<0.0098
	7/24/01	Total	P	<0.8	2.3J	<0.030	<0.02	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	0.2	<0.20	<0.060	2.2J	<0.40	1.0J	<0.070	<0.20	<0.0088
	7/18/02	Total	P	<0.8	<0.8	<0.04	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	0.12J	<0.2	<0.08	<0.8	<0.8	<1	<0.08	<0.2	<0.0089
	7/24/03	Total	P	<1.7	<1.7	0.057J	<0.021J	<0.021J	<0.042J	<0.1	<0.021J	<0.084J	<0.042	0.043J	<0.19	<0.084J	<3.1	<3.1	<1.3	0.11J	<0.19J	<0.0093
ICM-3	12/12/95	Total	P	13	<10	<3.3	2.6	1	0.68	<0.38	0.22	10	<0.15	9.5	7.4	<0.22	23	<9	<9	9.8	<1.4	0.0346
	8/2/00	Total	P	<0.76	<0.76	<0.029	<0.019	0.024J	<0.036	<0.095	<0.0095	<0.057	<0.029	<0.029	<0.16	<0.064	<0.4J	<0.4J	<0.76	<0.067	<0.16	<0.0098
	7/25/01	Total	P	<0.8	<0.8	<0.030	<0.02	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	<0.030	<0.20	<0.060	<0.40	<0.40	<0.8	<0.070	<0.20	<0.0088
	7/19/02	Total	P	1.1J	<0.8	<0.5	0.45	0.38	0.55	0.6J	0.099J	2.5	0.059J	1.1	0.64J	0.45	6.3J	3.1J	<1	0.93	<1	0.0094J
	7/24/03	Total	P	<1.6	<1.6	<0.04	0.052J	0.15J	0.066J	<0.1	0.052J	<0.081J	0.064J	0.061J	<0.18	0.089J	<3	<3	<1.2	0.12J	<0.18J	<0.0093
	3/7/12	Total	P	0.3J	<0.1	0.3J	0.2J	<0.1	<0.1	0.2J	<0.1	0.3J	<0.1	0.3J	0.4J	0.1J	0.2J	<0.1	0.1J	0.2J	0.6	---
	3/7/12	Diss	P	<0.09	<0.09	0.1J	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.2J	<0.09	0.2J	<0.09	<0.09	---
ICM-5	12/14/95	Total	P	<1.8	<2.3	7.3	0.29	1.3	0.35	<0.76	<0.17	<1.5	0.77	<0.21	0.21	<0.43	59	<18	<1.8	<0.64	<0.27	0.0424
	8/3/00	Total	P	5.4	25.1	<0.029	0.039J	<0.019	<0.037	<0.097	<0.0097	0.211J	<0.029	0.085J	4.87	<0.065	50J	0.5J	1.73J	<0.068	1.72	<0.0098
	7/25/01	Total	P	2.4J	<0.8	0.3	<0.02	<0.02	<0.040	<0.1J	<0.01	<0.06	<0.030	0.079J	3.3	<0.060	38	2.8J	<0.8	0.53	1.2	<0.0088
	7/22/02	Total	P	5.9J	<0.8	<0.5	0.025J	0.027J	<0.04	<0.1	<0.02	0.082J	<0.04	0.16J	4.8	<0.08	54	1.2J	<1	0.38J	1.7	<0.0089
	7/25/03	Total	P	8J	<1.7	0.67	<0.021	<0.021	<0.041	<0.1	<0.021	<0.083	<0.041	<0.5	3.6	<0.083	41	<3.1	<1.2	0.43	0.72J	<0.0093
	3/7/12	Total	P	5	<0.09	0.7	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.2J	4	<0.09	15	<0.09	<0.09	0.4J	0.7	---
	3/7/12	Diss	P	3	<0.09	0.1J	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	1	<0.09	5	<0.09	<0.09	<0.09	<0.09	---
ICM-6	12/12/95	Total	P	<1.8	<2.3	<0.66	0.15	<0.023	<0.018	<0.076	<0.017	0.7	<0.03	<0.21	<1.7	<0.043	180	200	600	<0.64	<0.27	0.0298
	8/2/00	Total	P	0.97J	190	<0.028	0.021J	<0.019	<0.036	<0.094	<0.0094	<0.057	<0.028	0.065J	<0.16	<0.063	81J	190J	594	1.74	1.3	---
	7/25/01	Total	P	2.0J	39	<0.03	<0.02	<0.02	<0.04	<0.09J	<0.009	<0.06	<0.03	<0.5	1.9	<0.06	74	140	440	1.5	1.2	---
	7/19/02	Total	P	<0.8	39	<0.04	<0.02	0.04J	<0.04	<0.1	<0.02	<0.08	<0.04	0.074J	1.3	<0.08	47	110	360	0.67	<0.2	---
	7/23/03	Total	P	14J	19	0.20J	<0.020	<0.020	<0.041	<0.10	<0.020	<0.082	<0.041	0.10J	1.2	<0.082	31	63	250	0.61	<0.18	---
	7/23/03	Total	D	18	26	0.28	<0.020	<0.020	<0.041	<0.10	<0.020	<0.081	<0.041	<0.20	1.6	<0.081	42	84	340	0.84	<0.18	---

Appendix C-2
Historical MNA Groundwater Monitoring Results
PAHs and Lead
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

				Polycyclic Aromatic Hydrocarbons (ug/L)																		
Location	Date	Total or Diss	Type	Acenap-hthene	Acenaph-thylene	Anthra-cene	Benzo(a) anthra-cene	Benzo(a) pyrene	Benzo(b) fluoran-thene	Benzo (g,h,i) perylene	Benzo(k) fluoran-thene	Chrysene	Dibenzo (a,h)anth-racene	Fluoran-thene	Fluorene	Indeno (1,2,3-cd) pyrene	1-Methyl naptha-lene	2-Methyl naptha-lene	Naphtha-lene	Phenan-threne	Pyrene	Lead (mg/L)
ICM-7	12/14/95	Total	P	<18	<20	<6.6	0.15	0.44	0.26	<0.76	<0.17	<1.5	<0.300	<2.1	<5.9	<0.43	55J	<18	<18	<6.4	<2.7	0.0082
	8/3/00	Total	P	<0.75	2.28J	<0.028	<0.019	<0.019	<0.036	<0.094	<0.0094	0.41	<0.028	<0.028	0.31J	<0.063	0.7J	2.2J	0.82J	<0.066	<0.16	<0.0098
	7/26/01	Total	P	<0.7	<0.7	<0.030	<0.02	<0.02	<0.040	<0.09	<0.009	<0.06	<0.030	<0.030	<0.20	<0.060	<0.40	<0.40	1.1J	<0.060	<0.20	<0.0088
	7/19/02	Total	P	<0.8	2.8J	0.12J	<0.02	<0.02	<0.04	<0.09	<0.02	<0.08	<0.04	<0.04	0.42J	<0.08	5.6J	<0.8	8.4	<0.08	<0.2	<0.0089
	7/25/03	Total	P	2.9J	4.6J	<0.038	<0.019	<0.019	<0.038	<0.096	<0.019	<0.077	<0.038	<0.038	0.2J	<0.077	<2.9	<2.9	20	<0.077	<0.17	<0.0093
	3/8/12	Total	P	0.1J	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	<0.1	2	<0.1	<0.1	---
	3/8/12	Diss	P	0.1J	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5	1	6	<0.1	<0.1	---
ICM-9	12/12/95	Total	P	<18	<20	<6.6	<0.13	<0.23	<0.18	<0.76	<0.17	<1.5	<0.3	<0.21	4.4J	<0.43	210J	310J	410J	7.7	<0.27	0.0023B
	8/2/00	Total	P	6.5J	271	<0.028	0.02J	<0.019	<0.036	<0.095	<0.095	0.071J	<0.028	0.38	9.17	<0.063	150J	230J	5.31J	8.57	2.75	<0.0098
	7/25/01	Total	P	3.6J	32	1.4	0.02J	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	0.7	12	<0.060	110	180	13	5.9	2.4	<0.0088
	7/24/02	Total	P	3.2J	<40	<2	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	0.58	6.9	<0.08	72	110	<1	3.2	<2	---
	7/23/03	Total	P	36	37	1.1	<0.019	<0.019	<0.039	<0.096	<0.019	0.077J	<0.039	0.87	7.4	<0.077	110	140	69	3.5	<0.80	<0.0093
	3/8/12	Total	P	5	1	1	3	6	11	7	5	6	1	10	7	6	150	200	5	4	7	---
	3/8/12	Diss	P	3	0.5	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	4	<0.09	110	160	7	<0.09	<0.09	---
ICM-10	7/25/02	Total	P	7.6J	<20	<3	<0.02	<0.02	<0.04	<0.1	<0.02	0.19J	<0.04	0.99	11	<0.08	160	8.9J	<1	10	<5	<0.0089
	7/23/03	Total	P	30	16	2	0.17	0.15	0.17J	0.29J	0.1	0.24J	<0.038	<3.0	12	0.18J	9.8J	8.3J	3.1J	11	2	<0.0093
	3/8/12	Total	P	8	<0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	0.1J	<0.1	0.4J	10	<0.1	74	<0.1	<0.1	7	0.5J	---
	3/8/12	Diss	P	7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	<0.1	68	<0.1	<0.1	0.3J	<0.1	---
KM-GP05	8/24/04	Total	P	1J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2J	<1	55	48	270	2J	<1	<0.01
KM-GP13	8/25/04	Total	P	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	48	81	380	<1	<1	0.0118J
L-2	3/8/12	Total	P	1	0.2J	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2	<0.1	21	<0.1	<0.1	<0.1	<0.1	---
	3/8/12	Diss	P	2	0.3J	0.4J	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	3	<0.09	23	<0.09	<0.09	0.8	0.2J	---
L-8	3/8/12	Total	P	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.3J	<0.09	0.1J	<0.09	<0.09	---
	3/8/12	Diss	P	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	---
L-14	3/24/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	7.3	<2	<2	<1	<0.5	0.0035
	8/2/00	Total	P	0.96	2.51	<0.028	<0.019	<0.019	<0.036	<0.095	<0.0095	0.068J	<0.028	0.099J	2.03	<0.063	3J	2.3J	<0.76	<0.066	2.13	<0.0098
	7/26/01	Total	P	<0.7	<0.7	<0.030	<0.02	<0.02	<0.040	<0.09	<0.009	<0.06	<0.030	0.058J	0.40J	<0.060	1.3J	0.70J	<0.7	<0.06	0.45J	<0.0088
	7/24/02	Total	P	<0.8	2.9J	<0.04	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	0.06J	0.46J	<0.08	4.2J	2J	<1	<0.08	<0.8	<0.0089
	7/24/03	Total	P	5.5J	<1.6	0.15J	<0.02J	<0.02J	<0.04J	<0.1	<0.02J	<0.08J	<0.04	0.063J	0.83	<0.08J	3.4J	<3	<1.2	0.37J	<0.18J	<0.0093
MH-1	3/24/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2	<2	<2	<1	<0.5	0.0021B
	7/28/03	Total	P	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-107	6/2/04	Total	P	<1.5	1.8J	0.061J	<0.019	<0.019	<0.038	<0.095	<0.019	<0.076	<0.038	0.12J	<0.17	<0.076	<2.9	<2.9	<1.5	0.3J	<0.17	<0.01
MW-109	6/2/04	Total	P	<1.5	<1.5	0.043J	<0.019	<0.019	<0.038	<0.095	<0.019	<0.076	<0.038	0.044J	<0.17	<0.076	<2.9	<2.9	<1.5	0.23J	<0.17	<0.01
MW-110	6/2/04	Total	P	<1.5	<1.5	<0.038	<0.019	<0.019	<0.038	<0.095	<0.019	<0.076	<0.038	<0.038	<0.17	<0.076	<2.9	<2.9	<1.5	<0.076	<0.17	<0.01
MW-111	6/2/04	Total	P	<1.5	44	0.3	0.058J	0.035J	<0.038	<0.096	<0.019	<0.4	<0.038	0.22	2.4	<0.076	57	170	470	1.3	0.48J	0.0147J
MW-112	6/2/04	Total	P	<1.6	<1.6	<0.04	<0.02	<0.02	<0.04	<0.1	<0.02	<0.081	<0.04	<0.04	<0.18	<0.081	<3	<3	<1.6	<0.081	<0.18	<0.01
MW-113	6/2/04	Total	P	<1.7	31	0.094J	0.025J	0.027J	<0.043	<0.11	<0.021	<0.085	<0.043	0.11J	1.2	<0.085	15J	12J	51	0.26J	<0.19	<0.01
MW-114	6/1/04	Total	P	<1.5	<1.5	<0.038	<0.019	<0.019	<0.038	<0.096	<0.019	<0.077	<0.038	<0.038	<0.17	<0.077	<2.9	<2.9	<1.5	<0.077	<0.17	<0.01
MW-116	6/2/04	Total	P	<1.6	26	0.87	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	0.28	3.6	<0.08	110	180	340	2.2	<0.8	<0.01
MW-116	8/25/04	Total	P	2J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2J	<1	110	180	340	2J	<1	<0.01
MW-117	6/2/04	Total	P	4.4J	64	0.79	0.15	0.15	0.1J	0.2J	0.037J	<0.5	<0.2	0.63	6	<0.077	19J	11J	39	0.42	2	0.0103J
	3/7/12	Total	P	2	<0.09	0.6	0.2J	0.2J	0.2J	0.2J	<0.09	0.3J	<0.09	0.7	2	0.1J	3	<0.09	<0.09	0.2J	1	---
	3/7/12	Diss	P	0.7	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.2J	<0.09	0.9	<0.09	<0.09	<0.09	<0.09	---
MW-118	3/8/12	Total	P	3	0.5	0.3J	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.2J	4	<0.09	74	<0.09	<0.09	3	0.7	---
	3/8/12	Diss	P	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4J	<0.1	35	<0.1	<0.1	<0.1	<0.1	---
N-42	3/7/12	Total	P	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	0.2J	<0.1	<0.1	0.1J	<0.1	---
	3/7/12	Diss	P	0.2J	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1J	<0.1	<0.1	<0.1	0.1J	<0.1	<0.1	---
N-43	12/12/95	Total	P	<1.8	<2.3	<0.66	0.046	0.09	0.098	0.15	0.05	<0.15	<0.03	0.22	<0.21	0.19	<1.8	<1.8	<1.8	<0.64	<0.27	0.0117
	3/25/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2	<2	<2	<1	<0.5	0.0039
OW-MW-3	3/26/97	Total	P	<2	<2	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.71	<2	<0.5	2.8	2.2	3.5	<1	0.68	0.126
	7/25/01	Total	P	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.0088
	7/22/02	Total	P	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.0089
	7/29/03	Total	P	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.0093
	7/29/03	Total	D	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.0093

Appendix C-2
Historical MNA Groundwater Monitoring Results
PAHs and Lead
Annual Progress Report for 2017
Former Port Mobil Terminal, Staten Island, NY

				Polycyclic Aromatic Hydrocarbons (ug/L)																		
Location	Date	Total or Diss	Type	Acenap-hthene	Acenaph-thylene	Anthra-cene	Benzo(a) anthra-cene	Benzo(a) pyrene	Benzo(b) fluoran-thene	Benzo (g,h,i) perylene	Benzo(k) fluoran-thene	Chrysene	Dibenzo (a,h)anth-racene	Fluoran-thene	Fluorene	Indeno (1,2,3-cd) pyrene	1-Methyl naptha-lene	2-Methyl naptha-lene	Naphtha-lene	Phenan-threne	Pyrene	Lead (mg/L)
RFI-1	3/18/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2	<2	<2	<1	<0.5	0.0114
	7/31/00	Total	P	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.0098
RFI-2	3/18/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2	<2	<2	<1	<0.5	0.00968
	7/31/00	Total	P	<0.77	<0.77	<0.029	<0.019	<0.019	<0.037	<0.097	<0.0097	<0.058	<0.029	<0.029	<0.16	<0.065	<2J	<2J	<0.77	<0.068	<0.16	<0.0098
	7/23/01	Total	P	<0.8	<0.8	<0.030	<0.02	<0.02	<0.040	<0.1	<0.01	<0.06	<0.030	<0.030	<0.20	<0.060	<0.40	<0.40	<0.8	<0.070	<0.20	<0.0088
	7/17/02	Total	P	<0.8	<0.8	<0.04	<0.02	<0.02	<0.04	<0.1J	<0.02	<0.08	<0.04J	<0.04	<0.2	<0.08	<0.8	<0.8	<1	<0.08	<0.2	<0.0089
	7/22/03	Total	P	<1.6	<1.6	<0.040	<0.020	<0.020	<0.040	<0.10J	<0.020	<0.080	<0.040J	<0.040	<0.18	<0.080	<3.0	<3.0	<1.2	<0.080	<0.18	<0.0093
RFI-4	3/18/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	31	62	200	<1	<0.5	0.178
	8/1/00	Total	P	<0.77	135	<0.029	<0.019	<0.019	<0.036	<0.096	<0.0096	<0.058	<0.029	0.033J	<0.16	<0.064	32J	83J	236	0.236J	0.57J	0.0125J
	7/25/01	Total	P	1.6J	22	<0.030	<0.02	<0.02	<0.04	<0.09J	<0.009	<0.06	<0.030	0.03J	1.4	<0.060	18	33	160	0.15J	<0.20	0.0118J
	7/19/02	Total	P	<0.8	27	0.041J	<0.02	<0.02	<0.04	<0.09	<0.02	<0.08	<0.04	<0.04	1.3	<0.08	15	40	210	<0.08	<0.2	<0.0129UJ
	7/23/03	Total	P	9.5J	14J	<0.042	<0.021	<0.021	<0.042	<0.10	<0.021	<0.084	<0.042	<0.042	<0.19	<0.084	9.1J	23	130	0.084J	<0.19	<0.0093
RFI-6	3/21/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	51J	80J	410	<1	<0.5	0.0082
	8/1/00	Total	P	<7.7	<169	<0.29	<0.19	<0.19	<0.36	<1	<0.096	<0.57	<0.29	<0.29	3.3J	<0.64	60J	150J	568	<0.67	<1.6	---
	7/24/01	Total	P	2.2J	160	<0.030	<0.02	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	<0.030	1.2	<0.060	65	140	570	0.43	<0.20	<0.0088
	7/23/02	Total	P	0.95J	47	<0.04	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	<0.04	1.4	<0.08	46	130	510	0.17J	<0.2	---
	7/23/02	Total	D	0.98J	53	<0.04	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	<0.04	1.4	<0.08	52	140	550	0.17J	<0.2	---
	7/23/03	Total	P	30	40	0.12J	<0.022	<0.022	<0.043	<0.11	<0.022	<0.086	<0.043	<0.043	1.8	<0.086	49	120	420	0.37J	<0.19	---
RFI-7	3/20/97	Total	P	5.8	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.6	<0.5	120	47	49	6.5	<0.5	0.0306
	8/1/00	Total	P	11J	<65.1J	22.2	<0.19	<0.19	<0.36	<1	<0.096	<0.58	<0.29	0.62J	15.5	<0.64	140J	70J	<21.5J	17.9	14.9	<0.0098
RFI-8	3/24/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	76J	57J	190	<1	<0.5	0.0168
	8/1/00	Total	P	1.2J	160	<0.028	<0.019	<0.019	<0.036	<0.095	<0.0095	0.074J	<0.028	0.094J	<0.16	<0.063	60J	86J	164	1.12	0.35J	<0.0098
	7/24/01	Total	P	4.8J	48	0.11J	<0.02	<0.02	<0.040	<0.1J	<0.01	0.16J	<0.030	0.3	2.8	<0.070	61.J	100.J	250	1.3	1	<0.0088
	7/18/02	Total	P	1.1J	39	<0.04	<0.02	<0.02	<0.04	<0.1J	<0.02J	<0.08J	<0.04J	0.18J	2.4	<0.08J	46	68J	140	<0.08	<0.2	<0.0089
RFI-8R	3/7/12	Total	P	0.9	<0.09	0.1J	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.1J	0.4J	<0.09	20	<0.09	<0.09	0.2J	0.1J	---
	3/7/12	Diss	P	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	11	<0.1	0.9	<0.1	<0.1	---
RFI-9	3/26/97	Total	P	5	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.8	<0.5	200	94	<2	4.7	<0.5	---
	8/2/00	Total	P	<0.76	11.4	<0.028	<0.019	<0.019	<0.036	<0.095	<0.0095	0.262J	<0.028	0.083J	0.39J	<0.064	1.8J	5.3J	5.41J	<0.066	<0.16	---
	7/26/01	Total	P	1.4J	5.3J	<0.03	0.03J	<0.02	<0.040	<0.09	<0.009	<0.06	<0.030	0.12J	0.42J	<0.06	<0.40	<0.40	1.8J	<0.06	0.61J	---
	7/19/02	Total	P	<0.8	<0.8	<0.5	<0.02	<0.02	<0.04	<0.09	<0.02	<0.08	<0.04	0.14J	0.3J	<0.08	1.4J	<0.8	1.5J	0.2J	<0.2	---
	7/23/03	Total	P	2.2J	2.3J	<0.30	<0.020	<0.020	<0.040	<0.099	<0.020	<0.080	<0.040	0.085J	0.33J	<0.080	4.5J	3.7J	16	0.22J	<0.18	---
	3/7/12	Total	P	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---
	3/7/12	Diss	P	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---
RFI-11	3/20/97	Total	P	<2	<2	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2	<2	<2	<1	<0.5	0.0207
	8/1/00	Total	P	<0.77	<4.9	0.22	<0.019	<0.019	<0.037	<0.096	<0.0096	<0.058	<0.029	<0.29	<0.16	<0.064	6J	11J	<5.4	0.46	0.18J	<0.0098
	7/24/01	Total	P	<0.8	1.7J	<0.030	<0.02	<0.02	<0.040	<0.09J	<0.009	<0.06	<0.030	<0.030	<0.20	<0.060	<0.40	0.52J	<0.8	<0.060	<0.20	<0.0088
	7/25/02	Total	P	<0.8	<0.8	<0.04	<0.02	<0.02	<0.04	<0.1	<0.02	<0.08	<0.04	<0.04	<0.2	<0.08	<0.8	<0.8	<1	<0.08	<0.2	<0.0089
	7/24/03	Total	P	<1.5J	<1.5J	<0.039J	0.1J	0.31J	0.09J	0.1J	0.12J	0.14J	0.21J	0.093J	<0.17J	0.11J	<2.9J	<2.9J	<1.2J	0.14J	<0.17J	<0.0093
	3/8/12	Total	P	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---
	3/8/12	Diss	P	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	---

Bold results indicate constituent detected above laboratory reporting limit.

Notes

PAHs = Polycyclic Aromatic Hydrocarbons
mg/L = Milligrams per liter
ug/L = Micrograms per liter
MNA = Facility-wide Monitored Natural Attenuation and hotspot/perimeter monitoring program
"---" = Not sampled for this parameter.
P = Primary sample
D = Duplicate Sample

Data Qualifiers

"<" = Indicates that this parameter was not detected at a concentration equal to above the laboratory detection limit indicated.
J = The associated numerical value is an estimated quantity (e.g., below reporting limit.)
B = The inorganic analyte result is between instrument detection limit and reporting limit.
U = Result qualified as non-detect based on data validation (e.g., compound was detected in a blank sample).
R = Result rejected by data validation.

Appendix D: Mann-Kendall Statistical Evaluations

MANN-KENDALL STATISTICS SUMMARY

Project: Former Port Mobil Terminal
Location: Staten Island, NY

Time Period: 12/12/1995 to October 2017

	Well	Number of Samples	Coefficient of Variation	Mann-Kendall Statistic (S)	Confidence in Trend (%)	Concentration Trend
BENZENE						
	I-3	25	1.05	-152	>99.9	Decreasing
	I-5	38	1.92	-384	>99.9	Decreasing
	I-6	36	0.83	-379	>99.9	Decreasing
	ICM-1	40	1.76	-628	>99.9	Decreasing
	ICM-6	35	1.15	-376	>99.9	Decreasing
	ICM-7	23	1.33	-106	99.9	Decreasing
	ICM-9	38	1.20	-541	>99.9	Decreasing
	ICM-10	20	0.85	-91	99.9	Decreasing
	KM-GP05	30	0.28	-202	>99.9	Decreasing
	KM-GP13	31	1.47	-192	>99.9	Decreasing
	L-8	33	1.77	-54	79.3	No Trend
	L-27	40	1.16	10	56.3	No Trend
	MW-103	40	1.34	-171	99	Decreasing
	MW-111	31	0.87	-192	>99.9	Decreasing
	MW-113	40	0.13	277	>99.9	Increasing
	MW-116	32	1.22	-285	>99.9	Decreasing
	MW-117	40	1.97	-79	88.6	No Trend
	MW-118	40	0.83	-373	>99.9	Decreasing
	N-42	40	2.04	17	60.6	No Trend
	RFI-4	38	1.71	-233	99.8	Decreasing
	RFI-6	38	0.99	-443	>99.9	Decreasing
	RFI-8R	35	-0.90	-506	>99.9	Decreasing
	RFI-9	22	1.42	-76	98.4	Decreasing
	RW-1A	40	0.66	-145	97.6	Decreasing

Notes: The data used for calculations of this analysis is comprised of up to forty (40) sampling events, per well, between December 1995 - October 2015.

MANN-KENDALL STATISTICS SUMMARY

Project: Former Port Mobil Terminal
Location: Staten Island, NY

Time Period: 12/12/1995 to October 2017

	Well	Number of Samples	Coefficient of Variation	Mann-Kendall Statistic (S)	Confidence in Trend (%)	Concentration Trend
TOLUENE						
	I-3	25	0.94	-109	99.5	Decreasing
	I-5	38	2.01	-291	>99.9	Decreasing
	I-6	36	1.68	-456	>99.9	Decreasing
	ICM-1	40	2.64	-334	>99.9	Decreasing
	ICM-6	35	1.30	-297	>99.9	Decreasing
	ICM-7	23	1.61	-53	91.4	Prob. Decreasing
	ICM-9	38	0.83	-462	>99.9	Decreasing
	ICM-10	20	0.72	13	66.1	No Trend
	KM-GP05	30	0.92	-323	>99.9	Decreasing
	KM-GP13	31	1.51	-256	>99.9	Decreasing
	L-8	33	1.11	-133	98	Decreasing
	L-27	40	1.01	63	86.4	No Trend
	MW-103	40	1.59	-64	82.4	No Trend
	MW-111	31	1.32	-256	>99.9	Decreasing
	MW-113.	40	0.89	-162	99.6	Decreasing
	MW-116	32	1.38	-211	>99.9	Decreasing
	MW-117	40	1.19	1	50	No Trend
	MW-118	40	0.85	-210	99.8	Decreasing
	N-42	40	0.79	15	58.5	No Trend
	RFI-4	38	2.09	-51	73.4	No Trend
	RFI-6	38	2.58	-295	>99.9	Decreasing
	RFI-8R	35	0.76	-473	>99.9	Decreasing
	RFI-9	22	1.66	-76	98.4	Decreasing
	RW-1A	40	1.09	-207	99.8	Decreasing

Notes: The data used for calculations of this analysis is comprised of up to forty (40) sampling events, per well, between December 1995 - October 2015.

MANN-KENDALL STATISTICS SUMMARY

Project: Former Port Mobil Terminal
Location: Staten Island, NY

Time Period: 12/12/1995 to October 2017

	Well	Number of Samples	Coefficient of Variation	Mann-Kendall Statistic (S)	Confidence in Trend (%)	Concentration Trend
ETHYLBENZENE						
	I-3	25	1.86	-138	100	Decreasing
	I-5	38	1.24	-351	>99.9	Decreasing
	I-6	36	0.52	-415	>99.9	Decreasing
	ICM-1	40	3.14	-376	>99.9	Decreasing
	ICM-6	35	0.66	-147	98.5	Decreasing
	ICM-7	23	1.82	-5	54.4	No Trend
	ICM-9	38	1.14	-364	>99.9	Decreasing
	ICM-10	20	0.55	-109	>99.9	Decreasing
	KM-GP05	30	0.53	-267	>99.9	Decreasing
	KM-GP13	31	0.89	-169	99.9	Decreasing
	L-8	33	2.07	-191	99.9	Decreasing
	L-27	40	0.79	73	90	Prob. Increasing
	MW-103	40	1.37	5	52.3	No Trend
	MW-111	31	1.16	-317	>99.9	Decreasing
	MW-113	40	0.29	334	>99.9	Increasing
	MW-116	32	1.95	-325	>99.9	Decreasing
	MW-117	40	1.96	26	65	No Trend
	MW-118	40	0.48	-263	>99.9	Decreasing
	N-42	40	0.96	201	99.9	Increasing
	RFI-4	38	1.29	-119	93.1	Prob. Decreasing
	RFI-6	38	1.53	-395	>99.9	Decreasing
	RFI-8R	35	2.03	-443	>99.9	Decreasing
	RFI-9	22	1.57	-91	99.5	Decreasing
	RW-1A	40	1.31	-229	99.9	Decreasing

Notes: The data used for calculations of this analysis is comprised of up to forty (40) sampling events, per well, between December 1995 - October 2015.

MANN-KENDALL STATISTICS SUMMARY

Project: Former Port Mobil Terminal
Location: Staten Island, NY

Time Period: 12/12/1995 to October 2017

	Well	Number of Samples	Coefficient of Variation	Mann-Kendall Statistic (S)	Confidence in Trend (%)	Concentration Trend
XYLENES, TOTAL						
	I-3	25	1.19	-152	>99.9	Decreasing
	I-5	38	2.47	-410	>99.9	Decreasing
	I-6	36	0.70	-443	>99.9	Decreasing
	ICM-1	40	4.23	-540	>99.9	Decreasing
	ICM-6	35	0.96	-362	>99.9	Decreasing
	ICM-7	23	1.84	-16	66.2	No Trend
	ICM-9	38	0.55	-426	>99.9	Decreasing
	ICM-10	20	0.58	1	50	No Trend
	KM-GP05	30	0.92	-340	>99.9	Decreasing
	KM-GP13	31	0.90	-211	>99.9	Decreasing
	L-8	33	1.09	-212	>99.9	Decreasing
	L-27	40	0.84	58	84.4	No Trend
	MW-103	40	1.37	9	54.7	No Trend
	MW-111	31	1.52	-338	>99.9	Decreasing
	MW-113	40	0.64	76	88.7	No Trend
	MW-116	32	1.72	-270	>99.9	Decreasing
	MW-117	40	3.08	2	50.6	No Trend
	MW-118	40	0.43	-388	>99.9	Decreasing
	N-42	40	0.89	22	62.7	No Trend
	RFI-4	38	1.29	-23	60.8	No Trend
	RFI-6	38	1.89	-334	>99.9	Decreasing
	RFI-8R	35	2.50	-492	>99.9	Decreasing
	RFI-9	22	2.06	-108	99.9	Decreasing
	RW-1A	40	1.10	-225	99.9	Decreasing

Notes: The data used for calculations of this analysis is comprised of up to forty (40) sampling events, per well, between December 1995 - October 2015.

MANN-KENDALL STATISTICS SUMMARY

Project: Former Port Mobil Terminal
Location: Staten Island, NY

Time Period: 12/12/1995 to October 2017

	Well	Number of Samples	Coefficient of Variation	Mann-Kendall Statistic (S)	Confidence in Trend (%)	Concentration Trend
BENZENE, TOLUENE, ETHYLBENZENE XYLENE (BTEX)						
	I-3	25	1.19	-152	>99.9	Decreasing
	I-5	38	1.62	-398	>99.9	Decreasing
	I-6	36	0.67	-455	>99.9	Decreasing
	ICM-1	40	3.15	-648	>99.9	Decreasing
	ICM-6	35	1.00	-404	>99.9	Decreasing
	ICM-7	23	1.52	-75	97.5	Decreasing
	ICM-9	38	1.15	-537	>99.9	Decreasing
	ICM-10	20	0.52	-107	>99.9	Decreasing
	KM-GP05	30	0.50	-292	>99.9	Decreasing
	KM-GP13	31	1.35	-264	>99.9	Decreasing
	L-8	33	1.71	-79	88.6	No Trend
	L-27	40	1.21	23	65.1	No Trend
	MW-103	40	1.42	-50	75.6	No Trend
	MW-111	31	1.32	-327	>99.9	Decreasing
	MW-113	40	0.17	236	>99.9	Increasing
	MW-116	32	1.47	-340	>99.9	Decreasing
	MW-117	40	2.57	-36	70.5	No Trend
	MW-118	40	0.70	-467	>99.9	Decreasing
	N-42	40	1.78	11	56.1	No Trend
	RFI-4	38	1.35	-57	75.8	No Trend
	RFI-6	38	1.73	-453	>99.9	Decreasing
	RFI-8R	35	1.92	-495	>99.9	Decreasing
	RFI-9	22	1.54	-80	99.2	Decreasing
	RW-1A	40	0.77	-197	99.7	Decreasing

Notes: The data used for calculations of this analysis is comprised of up to forty (40) sampling events, per well, between December 1995 - October 2015.

MANN-KENDALL STATISTICS SUMMARY

Project: Former Port Mobil Terminal
Location: Staten Island, NY

Time Period: 12/12/1995 to October 2017

	Well	Number of Samples	Coefficient of Variation	Mann-Kendall Statistic (S)	Confidence in Trend (%)	Concentration Trend
METHYL TERT-BUTYL ETHER						
	I-3	15	0.45	-7	59.6	Stable
	I-5	28	0.58	-60	92.8	Prob. Decreasing
	I-6	30	0.62	-152	99.9	Decreasing
	ICM-1	40	1.58	-311	>99.9	Decreasing
	ICM-6	29	0.85	-51	85	Stable
	ICM-7	14	2.54	34	93	Prob. Increasing
	ICM-9	29	0.66	-98	96.6	Decreasing
	ICM-10	14	0.71	-33	97.5	Decreasing
	KM-GP05	30	0.71	-215	>99.9	Decreasing
	KM-GP13	32	2.36	-179	99.8	Decreasing
	L-8	33	1.21	-64	86.8	No Trend
	L-27	40	0.96	-62	84.9	Stable
	MW-103	40	1.35	-112	95.7	Decreasing
	MW-111	31	1.03	-206	>99.9	Decreasing
	MW-113	40	0.43	-200	>99.9	Decreasing
	MW-116	32	1.06	-175	>99.9	Decreasing
	MW-117	40	1.82	-51	80.1	No Trend
	MW-118	40	0.68	-277	>99.9	Decreasing
	N-42	40	1.12	-5	53.3	No Trend
	RFI-4	29	1.26	13	59.3	No Trend
	RFI-6	29	0.94	-183	>99.9	Decreasing
	RFI-8R	36	0.72	-262	>99.9	Decreasing
	RFI-9	13	1.53	-58	>99.9	Decreasing
	RW-1A	40	1.24	-36	75.4	No Trend

Notes: The data used for calculations of this analysis is comprised of up to forty (40) sampling events, per well, between December 1995 - October 2015.

Appendix E: Natural Attenuation Rate Calculation

I-3 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

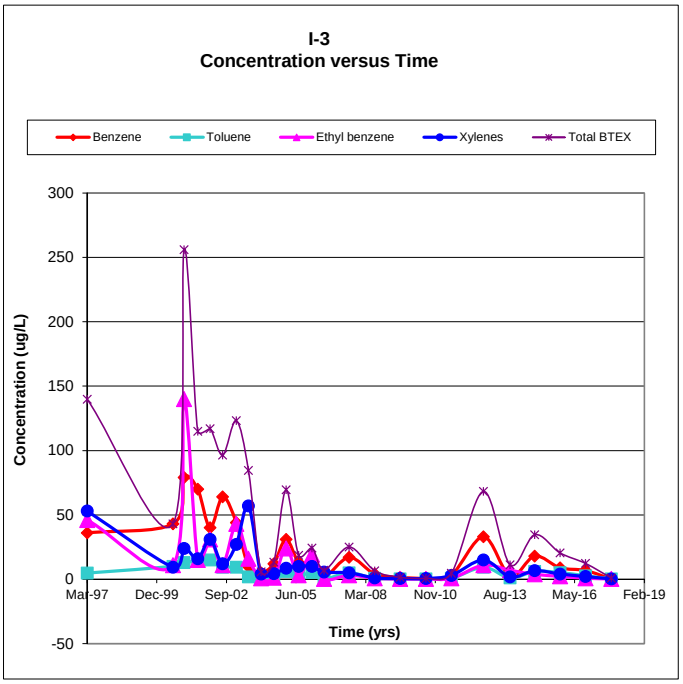
t = Time in years

r = Apparent first order rate constant (per year)

I-3	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.18	0.11	0.20	0.17	0.17
R^2	0.399	0.173	0.341	0.487	0.363
Half-life (yrs)	3.8	6.5	3.5	4.1	4.1

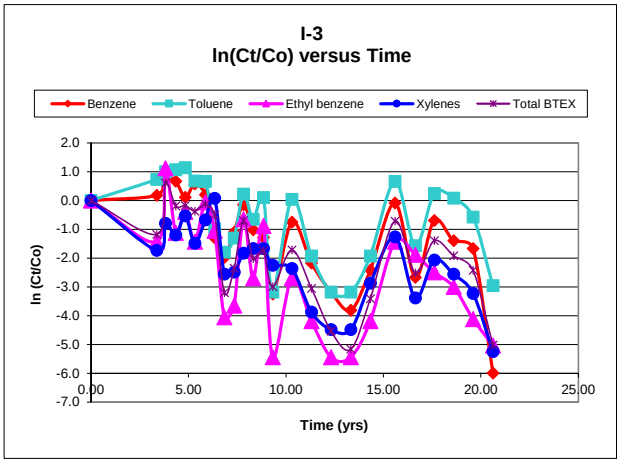
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Mar-97	36	4.8	46	53	139.8
Aug-00	43	10	11	9	43
Jan-01	79	13	140	24	256
Jul-01	70	14	15	16	115
Jan-02	40	15	31	31	117
Jul-02	64	9	11	12	96.4
Jan-03	44	9	43	27	123.3
Jul-03	9.8	1.8	16	57	84.6
Jan-04	5	0.8	0.8	4.1	5.7
Jul-04	12	1.3	1.2	4.4	13.3
Jan-05	31	6	24	8.5	69.5
Jul-05	13	2.5	3.1	10	18.6
Jan-06	10	5.3	19	10	24.3
Jul-06	1.4	0.2	0.2	5.6	7
Jul-07	17	5	3.1	5	25.1
Jul-08	4.1	0.7	0.7	1.1	6.6
Jul-09	1.5	0.2	0.2	0.6	1.5
Jul-10	0.8	0.2	0.2	0.6	0.8
Jul-11	3.2	0.7	0.7	3	4.6
Oct-12	33	9.3	11	15	68.3
Nov-13	2.5	1	7	1.8	11.3
Oct-14	18	6.1	3.8	6.7	34.6
Oct-15	8.9	5.2	2.3	4.1	20.5
Oct-16	6.8	2.7	0.75	2.1	12.35
Oct-17	0.09	0.25	0.3	0.28	0.92



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
3.37	0.18	0.73	-1.43	-1.73	-1.18
3.81	0.79	1.00	1.11	-0.79	0.60
4.35	0.66	1.07	-1.12	-1.20	-0.20
4.83	0.11	1.14	-0.39	-0.54	-0.18
5.33	0.58	0.67	-1.43	-1.49	-0.37
5.86	0.20	0.66	-0.07	-0.67	-0.13
6.34	-1.30	-0.98	-1.06	0.07	-0.50
6.84	-1.97	-1.79	-4.05	-2.56	-3.20
7.34	-1.10	-1.31	-3.65	-2.49	-2.35
7.82	-0.15	0.22	-0.65	-1.83	-0.70
8.32	-1.02	-0.65	-2.70	-1.67	-2.02
8.84	-1.28	0.10	-0.88	-1.67	-1.75
9.32	-3.25	-3.18	-5.44	-2.25	-2.99
10.30	-0.75	0.04	-2.70	-2.36	-1.72
11.31	-2.17	-1.93	-4.19	-3.87	-3.05
12.31	-3.18	-3.18	-5.44	-4.48	-4.53
13.33	-3.81	-3.18	-5.44	-4.48	-5.16
14.33	-2.42	-1.93	-4.19	-2.87	-3.41
15.59	-0.09	0.66	-1.43	-1.26	-0.72
16.64	-2.67	-1.57	-1.88	-3.38	-2.52
17.61	-0.69	0.24	-2.49	-2.07	-1.40
18.60	-1.40	0.08	-3.00	-2.56	-1.92
19.60	-1.67	-0.58	-4.12	-3.23	-2.43
20.62	-5.99	-2.95	-5.03	-5.24	-5.02



I-3

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

I-5 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

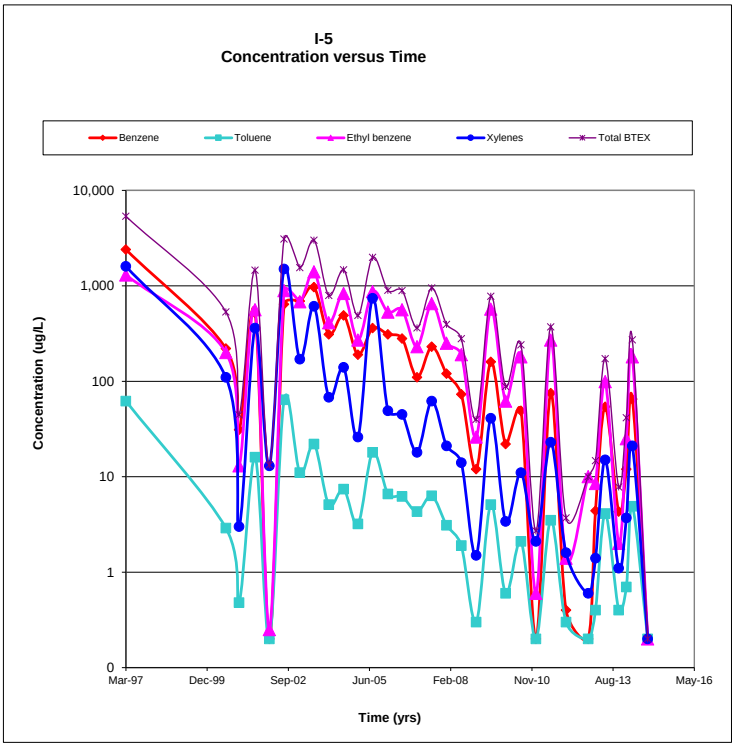
t = Time in years

k = Apparent first order rate constant (per year)

I-5	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.33	0.18	0.29	0.33	0.34
R^2	0.3934	0.3584	0.3206	0.5779	0.4553
Half-life (yrs)	2.1	3.8	2.4	2.1	2.0

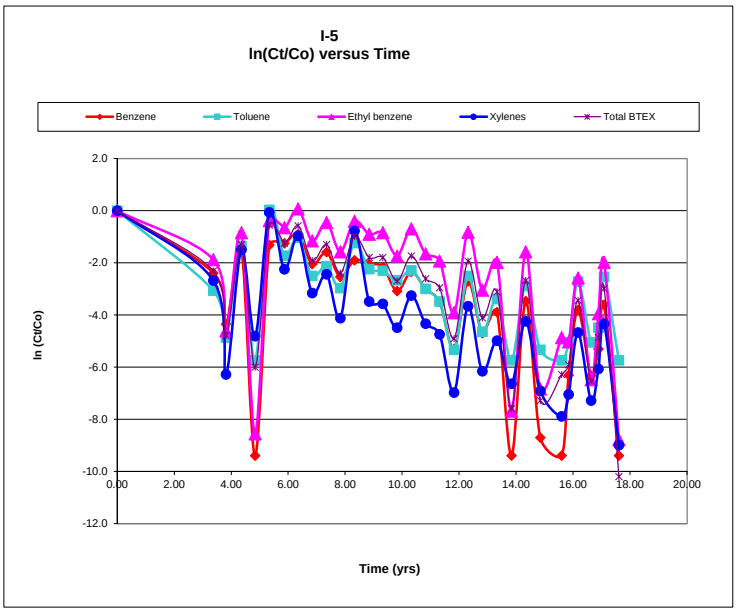
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Mar-97	2,400	62.0	1,300	1,600	5362
Jul-00	220	3	200	110	532.9
Jan-01	31	0	13	3	44.48
Jul-01	520	16	560	360	1456
Jan-02	0.20	0.20	0.25	13	13.25
Jul-02	640	64	890	1,500	3094
Jan-03	690	11	680	170	1551
Jul-03	970	22	1400	610	3002
Jan-04	310	5.1	410	68	793.1
Jul-04	490	7.4	830.0	140.0	1467.4
Jan-05	190	3	270	26.0	489.2
Jul-05	360	18	870	740	1988
Jan-06	310	6.6	530	49	895.6
Jul-06	280	6.2	560	45	891.2
Jan-07	110	4.3	230	18	362.3
Jul-07	230	6.3	650	62	948.3
Jan-08	120	3.1	250	21	394.1
Jul-08	73	1.9	190	14	278.9
Jan-09	12	0.3	26	1.5	39.8
Jul-09	160	5.1	570	41	776.1
Jan-10	22	0.6	62	3.4	88
Jul-10	49	2.1	180	11	240
Jan-11	0.2	0.2	0.6	2.1	2.7
Jul-11	75	3.5	270	23	371.5
Jan-12	0.4	0.3	1.4	1.6	3.7
Oct-12	0.2	0.2	10	0.6	10
Jan-13	4.4	0.4	8.5	1.4	14.7
May-13	54	4.1	99	15	172.1
Oct-13	4.3	0.4	2	1.1	7.8
Jan-14	12	0.7	25	3.7	41.4
Apr-14	65	4.9	180	21	270.9
Oct-14	0.2	0.2	0.2	0.2	0.2
Apr-15	48	2.1	110	10	170.1
Oct-15	0.49	0.5	0.5	1	0.49
Apr-16	0.049	0.125	0.15	0.14	0.15
Oct-16	0.5	0.5	0.5	1	2.5
Apr-17	38	2.1	68	7.7	115.8
Oct-17	6.2	0.49	3.9	1.2	11.79



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
3.37	-2.39	-3.06	-1.87	-2.68	-2.31
3.82	-4.35	-4.86	-4.61	-6.28	-4.79
4.36	-1.53	-1.35	-0.84	-1.49	-1.30
4.84	-9.39	-5.74	-8.56	-4.81	-6.00
5.34	-1.32	0.03	-0.38	-0.06	-0.55
5.87	-1.25	-1.73	-0.65	-2.24	-1.24
6.35	-0.91	-1.04	0.07	-0.96	-0.58
6.84	-2.05	-2.50	-1.15	-3.16	-1.91
7.35	-1.59	-2.13	-0.45	-2.44	-1.30
7.83	-2.54	-2.96	-1.57	-4.12	-2.39
8.33	-1.90	-1.24	-0.40	-0.77	-0.99
8.84	-2.05	-2.24	-0.90	-3.49	-1.79
9.32	-2.15	-2.30	-0.84	-3.57	-1.79
9.82	-3.08	-2.67	-1.73	-4.49	-2.69
10.32	-2.35	-2.29	-0.69	-3.25	-1.73
10.82	-3.00	-3.00	-1.65	-4.33	-2.61
11.32	-3.49	-3.49	-1.92	-4.74	-2.96
11.82	-5.30	-5.33	-3.91	-6.97	-4.90
12.31	-2.71	-2.50	-0.82	-3.66	-1.93
12.81	-4.69	-4.64	-3.04	-6.15	-4.11
13.33	-3.89	-3.39	-1.98	-4.98	-3.11
13.84	-9.39	-5.74	-7.68	-6.64	-7.59
14.33	-3.47	-2.87	-1.57	-4.24	-2.67
14.85	-8.70	-5.33	-6.83	-6.91	-7.28
15.60	-9.39	-5.74	-4.87	-7.89	-6.28
15.84	-6.30	-5.04	-5.03	-7.04	-5.90
16.17	-3.79	-2.72	-2.57	-4.67	-3.44
16.63	-6.32	-5.04	-6.48	-7.28	-6.53
16.88	-5.30	-4.48	-3.95	-6.07	-4.86
17.09	-3.61	-2.54	-1.98	-4.33	-2.99
17.61	-9.39	-5.74	-8.78	-8.99	-10.20
18.10	-3.91	-3.39	-2.47	-5.08	-3.45
18.60	-8.50	-4.82	-7.86	-7.38	-9.30
19.10	-10.80	-6.21	-9.07	-9.34	-10.48
19.60	-8.48	-4.82	-7.86	-7.38	-7.67
20.12	-4.15	-3.39	-2.95	-5.34	-3.84
20.62	-5.96	-4.84	-5.81	-7.20	-6.12



I-5

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.064948769
R Square	0.004218343
Adjusted R Square	-0.106424064
Standard Error	2.674865295
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.27278725	0.27278725	0.038125912	0.849527497
Residual	9	64.3941391	7.154904344		
Total	10	64.66692635			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-2.10352647	2.101465107	-1.000980917	0.3429871	-6.857374438	2.650321498	-6.857374438	2.650321498
X Variable 1	-0.074566944	0.38188819	-0.195258576	0.849527497	-0.938458706	0.789324818	-0.938458706	0.789324818

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.154843622
R Square	0.023976547
Adjusted R Square	-0.084470503
Standard Error	1.891904008
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.791347247	0.791347247	0.221089899	0.649396193
Residual	9	32.21370697	3.579300775		
Total	10	33.00505422			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.657886375	1.486344104	-1.115412219	0.293569754	-5.020232899	1.704460148	-5.020232899	1.704460148
X Variable 1	-0.127004135	0.270105488	-0.470201977	0.649396193	-0.738025666	0.484017396	-0.738025666	0.484017396

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.066000839
R Square	0.004356111
Adjusted R Square	-0.106270988
Standard Error	2.719072257
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.291124592	0.291124592	0.039376526	0.847114614
Residual	9	66.54018544	7.393353938		
Total	10	66.83131003			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-2.209867049	2.1361956	-1.034487221	0.327904075	-7.042280909	2.622546811	-7.042280909	2.622546811
X Variable 1	0.077032458	0.388199579	0.198435193	0.847114614	-0.80113667	0.955201587	-0.80113667	0.955201587

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.24554811
R Square	0.060293874
Adjusted R Square	-0.044117917
Standard Error	1.999632826
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.309001202	2.309001202	0.57746231	0.466747123
Residual	9	35.98678295	3.998531439		
Total	10	38.29578415			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.465406864	1.570979526	-0.932798194	0.375271036	-5.019212159	2.088398431	-5.019212159	2.088398431
X Variable 1	-0.216943374	0.285485838	-0.759909409	0.466747123	-0.8627577	0.428870951	-0.8627577	0.428870951

I-6 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

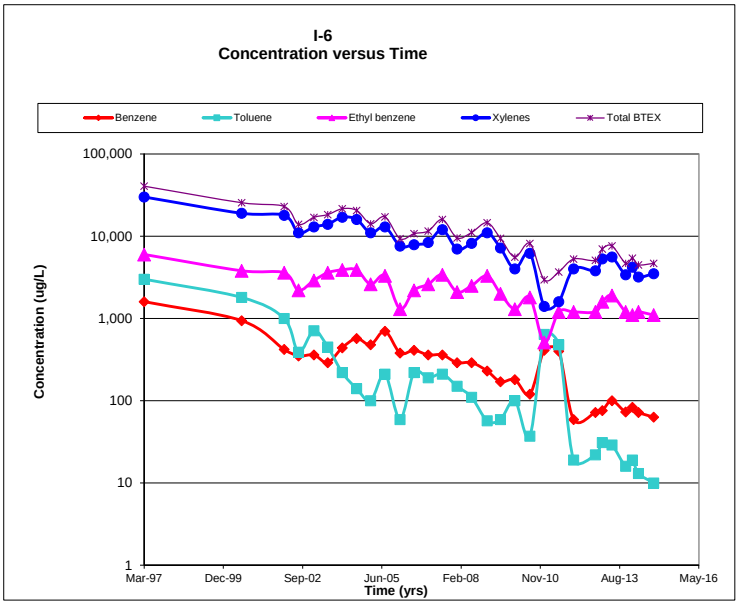
t = Time in years

k = Apparent first order rate constant (per year)

I-6	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.20	0.31	0.09	0.14	0.13
R^2	0.844	0.819	0.717	0.810	0.871
Half-life (yrs)	3.5	2.2	7.5	4.9	5.3

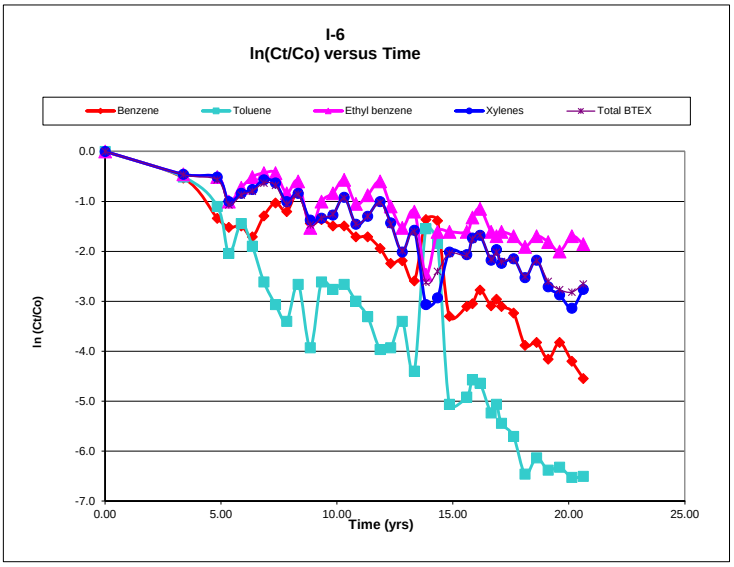
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Mar-97	1,600	3,000.0	6,000	30,000	40600
Jul-00	940	1,800	3,800	19,000	25540
Jan-02	420	1,000	3,600	18,000	23020
Jul-02	350	390	2,200	11,000	13940
Jan-03	360	710	2,900	13,000	16970
Jul-03	290	450	3,600	14,000	18340
Jan-04	440	220	3,900	17,000	21560
Jul-04	570	140	3900	16000	20610
Jan-05	480	100	2600	11000	14180
Jul-05	700	210	3,300	13,000	17,210
Jan-06	380	59	1,300	7,600	9,339
Jul-06	410	220	2200	7900	10730
Jan-07	360	190	2600	8400	11550
Jul-07	360	210	3400	12000	15970
Jan-08	290	150	2100	7000	9540
Jul-08	290	110	2500	8200	11100
Jan-09	230	57	3300	11000	14587
Jul-09	170	59	2000	7200	9429
Jan-10	180	100	1300	4000	5580
Jul-10	120	37	1800	6200	8157
Jan-11	410	640	510	1400	2960
Jul-11	400	480	1200	1600	3680
Jan-12	59	19	1200	4000	5278
Oct-12	72	22	1200	3800	5094
Jan-13	76	31	1600	5300	7007
May-13	100	29	1900	5600	7629
Nov-13	73	16	1200	3400	4689
Jan-14	83	19	1100	4200	5402
Apr-14	72	13	1200	3200	4485
Oct-14	63	10	1100	3500	4673
Apr-15	33	4.7	890	2400	3327.7
Oct-15	35	6.5	1100	3400	4541.5
Apr-16	25	5.1	980	2000	3010.1
Oct-16	35	5.4	810	1700	2550.4
Apr-17	24	4.4	1100	1300	2428.4
Oct-17	17	4.5	940	1900	2861.5



Natural Logarithm (Ct/Co) vers

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
3.37	-0.53	-0.51	-0.46	-0.46	-0.46
4.84	-1.34	-1.10	-0.51	-0.51	-0.57
5.34	-1.52	-2.04	-1.00	-1.00	-1.07
5.87	-1.49	-1.44	-0.73	-0.84	-0.87
6.35	-1.71	-1.90	-0.51	-0.76	-0.79
6.85	-1.29	-2.61	-0.43	-0.57	-0.63
7.35	-1.03	-3.06	-0.43	-0.63	-0.68
7.83	-1.20	-3.40	-0.84	-1.00	-1.05
8.33	-0.83	-2.66	-0.60	-0.84	-0.86
8.85	-1.44	-3.93	-1.53	-1.37	-1.47
9.33	-1.36	-2.61	-1.00	-1.33	-1.33
9.82	-1.49	-2.76	-0.84	-1.27	-1.26
10.31	-1.49	-2.66	-0.57	-0.92	-0.93
10.82	-1.71	-3.00	-1.05	-1.46	-1.45
11.32	-1.71	-3.31	-0.88	-1.30	-1.30
11.86	-1.94	-3.96	-0.60	-1.00	-1.02
12.32	-2.24	-3.93	-1.10	-1.43	-1.46
12.81	-2.18	-3.40	-1.53	-2.01	-1.98
13.33	-2.59	-4.40	-1.20	-1.58	-1.60
13.83	-1.36	-1.54	-2.47	-3.06	-2.62
14.33	-1.39	-1.83	-1.61	-2.93	-2.40
14.85	-3.30	-5.06	-1.61	-2.01	-2.04
15.60	-3.10	-4.92	-1.61	-2.07	-2.08
15.84	-3.05	-4.57	-1.32	-1.73	-1.76
16.17	-2.77	-4.64	-1.15	-1.68	-1.67
16.64	-3.09	-5.23	-1.61	-2.18	-2.16
16.88	-2.96	-5.06	-1.70	-1.97	-2.02
17.09	-3.10	-5.44	-1.61	-2.24	-2.20
17.61	-3.23	-5.70	-1.70	-2.15	-2.16
18.11	-3.88	-6.46	-1.91	-2.53	-2.50
18.61	-3.82	-6.13	-1.70	-2.18	-2.19
19.11	-4.16	-6.38	-1.81	-2.71	-2.60
19.60	-3.82	-6.32	-2.00	-2.87	-2.77
20.13	-4.20	-6.52	-1.70	-3.14	-2.82
20.62	-4.54	-6.50	-1.85	-2.76	-2.65



I-6

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.778429859
R Square	0.605953045
Adjusted R Square	0.549660623
Standard Error	0.36255428
Observations	9

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.414930505	1.414930505	10.76438038	0.013470126
Residual	7	0.920119243	0.131445606		
Total	8	2.335049748			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.199412158	0.306622785	-0.650350099	0.536219282	-0.924459312	0.525634996	-0.924459312	0.525634996
X Variable 1	-0.174381688	0.053150378	-3.280911517	0.013470126	-0.300062272	-0.048701105	-0.300062272	-0.048701105

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.918362121
R Square	0.843388985
Adjusted R Square	0.821015983
Standard Error	0.482641714
Observations	9

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	8.781189947	8.781189947	37.69672848	0.000472253
Residual	7	1.630601172	0.232943025		
Total	8	10.41179112			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.518115089	0.408184249	1.269316713	0.244898905	-0.447086594	1.483316771	-0.447086594	1.483316771
X Variable 1	-0.434420197	0.07075517	-6.139766158	0.000472253	-0.601729468	-0.267110927	-0.601729468	-0.267110927

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.629059525
R Square	0.395715886
Adjusted R Square	0.309389584
Standard Error	0.238920351
Observations	9

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.261665602	0.261665602	4.583955024	0.069529787
Residual	7	0.399580538	0.057082934		
Total	8	0.66124614			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.147576536	0.202061946	-0.730352942	0.488891019	-0.625376771	0.330223699	-0.625376771	0.330223699
X Variable 1	-0.074990568	0.035025671	-2.141017287	0.069529787	-0.15781306	0.007831925	-0.15781306	0.007831925

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.803269696
R Square	0.645242204
Adjusted R Square	0.594562519
Standard Error	0.199150281
Observations	9

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.504952707	0.504952707	12.73177218	0.009119321
Residual	7	0.27762584	0.039660834		
Total	8	0.782578547			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.088691297	0.168427231	-0.52658526	0.614749655	-0.486958128	0.309575533	-0.486958128	0.309575533
X Variable 1	-0.10417384	0.029195388	-3.568160895	0.009119321	-0.173209913	-0.035137768	-0.173209913	-0.035137768

ICM-1 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

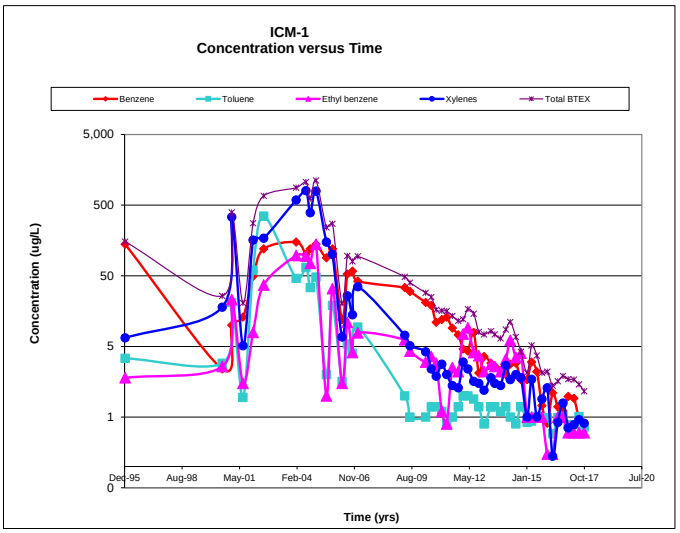
t = Time in years

k = Apparent first order rate constant (per year)

ICM-1	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.27	0.24	0.20	0.34	0.31
R^2	0.675	0.571	0.397	0.654	0.745
Half-life (yrs)	2.5	2.8	3.5	2.0	2.2

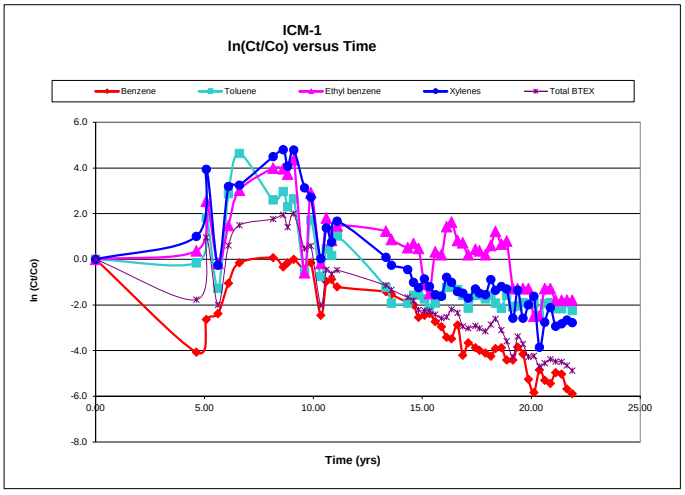
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Dec-95	140	3.4	2	7	151.8
Jul-00	2	3	3	18	25.9
Jan-01	10	21	23	340	394
Jul-01	13	1	2	5	20.55
Jan-02	49	60	8	160	276.9
Jul-02	120	350	37	170	677
Feb-04	150	46	97	590	883
Jul-04	100	66	95	800	1061
Oct-04	120	34	75	390	619
Jan-05	140	48.0	140.0	790.0	1118
Jul-05	90	2	1	150.0	242
Oct-05	120	19	33	100	272
Apr-06	12	1.6	1.5	6.8	20.3
Jul-06	53	5.4	11	26	95.4
Oct-06	58	4	4.1	14	80.1
Jan-07	42	9.4	7.8	35	94.2
Apr-09	34	1	6.2	7.2	48.4
Jul-09	30	0.5	4.3	5.1	39.9
Apr-10	21	0.5	3	4.2	28.7
Jul-10	19	0.7	3.6	2.4	25
Oct-10	11	0.7	2.9	1.9	16.5
Jan-11	12	0.6	0.6	2.8	16
Apr-11	13	0.4	0.4	2	15.8
Jul-11	9.1	0.5	2.5	1.4	13.5
Oct-11	7.3	0.7	2.2	1.3	11.5
Jan-12	4.6	1	7.5	3	12.1
Apr-12	4.3	1	9.2	2.4	16.9
Jul-12	7.9	0.9	4.1	1.6	14.5
Oct-12	2.1	0.7	3.7	1.5	8
Jan-13	3.6	0.4	2.2	1.2	7.4
May-13	2.9	0.7	2.8	1.8	8.2
Jul-13	2.6	0.7	2.6	1.5	7.4
Oct-13	2.3	0.6	2.2	1.4	6.5
Jan-14	2	0.7	3.3	2.7	8.7
Apr-14	2.8	0.5	6.1	1.7	11.1
Jul-14	2.9	0.4	3.5	2	6.8
Oct-14	1.7	0.7	4	1.8	4.2
Feb-15	1.7	0.42	0.5	0.5	2.12
Apr-15	3	0.44	0.5	1.71	5.15
Jul-15	2.2	0.51	0.5	0.5	3.71
Oct-15	0.73	0.48	0.5	0.9	2.11
Jan-16	0.41	0.49	0.15	1.3	2.2
Apr-16	1.1	0.29	0.15	0.14	1.39
Jul-16	0.7	0.49	0.5	0.42	1.61
Oct-16	0.61	0.51	0.5	0.79	1.91
Jan-17	0.98	0.39	0.3	0.35	1.72
Apr-17	0.92	0.39	0.3	0.39	1.7
Jul-17	0.48	0.51	0.3	0.46	1.45
Oct-17	0.39	0.36	0.3	0.41	1.16



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
4.62	-4.07	-0.16	0.37	1.00	-1.77
5.08	-2.64	1.82	2.55	3.94	0.95
5.62	-2.38	-1.28	-0.18	-0.26	-2.00
6.10	-1.05	2.87	1.48	3.19	0.60
6.60	-0.15	4.63	3.02	3.25	1.50
8.15	0.07	2.60	3.99	4.49	1.76
8.62	-0.34	2.97	3.97	4.80	1.94
8.82	-0.15	2.30	3.73	4.08	1.41
9.10	0.00	2.65	4.35	4.78	2.00
9.59	-0.44	-0.53	-0.59	3.12	0.47
9.88	-0.15	1.72	2.91	2.72	0.58
10.34	-2.46	-0.75	-0.18	0.03	-2.01
10.59	-0.97	0.46	1.81	1.37	-0.46
10.84	-0.88	0.16	0.82	0.75	-0.64
11.09	-1.20	1.02	1.47	1.67	-0.48
13.33	-1.42	-1.22	1.24	0.09	-1.14
13.58	-1.54	-1.92	0.87	-0.26	-1.34
14.33	-1.90	-1.92	0.51	-0.45	-1.67
14.59	-2.00	-1.58	0.69	-1.01	-1.80
14.82	-2.54	-1.58	0.48	-1.25	-2.22
15.10	-2.46	-1.73	-1.10	-0.86	-2.25
15.33	-2.38	-2.14	-1.50	-1.19	-2.26
15.59	-2.73	-1.92	0.33	-1.55	-2.42
15.88	-2.95	-1.58	0.20	-1.62	-2.58
16.11	-3.42	-1.22	1.43	-0.79	-2.53
16.34	-3.48	-1.22	1.63	-1.01	-2.20
16.62	-2.87	-1.33	0.82	-1.42	-2.35
16.86	-4.20	-1.58	0.72	-1.48	-2.94
17.11	-3.66	-2.14	0.20	-1.70	-3.02
17.44	-3.88	-1.58	0.44	-1.30	-2.92
17.62	-3.99	-1.58	0.37	-1.48	-3.02
17.90	-4.11	-1.73	0.20	-1.55	-3.15
18.15	-4.25	-1.58	0.61	-0.89	-2.86
18.36	-3.91	-1.92	1.22	-1.36	-2.62
18.63	-3.88	-2.14	0.66	-1.19	-3.11
18.87	-4.41	-1.58	0.80	-1.30	-3.59
19.16	-4.41	-2.09	-1.28	-2.58	-4.27
19.38	-3.84	-2.04	-1.28	-1.35	-3.38
19.62	-4.15	-1.90	-1.28	-2.58	-3.71
19.87	-5.26	-1.96	-1.28	-1.99	-4.28
20.12	-5.83	-1.94	-2.48	-1.62	-4.23
20.38	-4.85	-2.46	-2.48	-3.85	-4.69
20.62	-5.30	-1.94	-1.28	-2.75	-4.55
20.87	-5.44	-1.90	-1.28	-2.12	-4.38
21.12	-4.96	-2.17	-1.79	-2.94	-4.48
21.39	-5.03	-2.17	-1.79	-2.83	-4.49
21.64	-5.68	-1.90	-1.79	-2.66	-4.65
21.88	-5.88	-2.25	-1.79	-2.78	-4.87



ICM-1

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.294231382
R Square	0.086572106
Adjusted R Square	-0.02760638
Standard Error	1.470929515
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.640504499	1.640504499	0.75821732	0.409254709
Residual	8	17.3090691	2.163633638		
Total	9	18.9495736			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-2.046595372	1.213381537	-1.686687418	0.13014709	-4.844660024	0.75146928	-4.844660024	0.75146928
X Variable 1	0.156001479	0.17915621	0.870756752	0.409254709	-0.257133749	0.569136708	-0.257133749	0.569136708

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.573784103
R Square	0.329228197
Adjusted R Square	0.245381721
Standard Error	1.550547457
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	9.440224845	9.440224845	3.926559766	0.082849101
Residual	8	19.23357933	2.404197417		
Total	9	28.67380418			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.499687143	1.279059016	-0.390667778	0.706240193	-3.44920443	2.449830143	-3.44920443	2.449830143
X Variable 1	0.374223601	0.188853513	1.981554886	0.082849101	-0.061273662	0.809720864	-0.061273662	0.809720864

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.820922354
R Square	0.673913511
Adjusted R Square	0.6331527
Standard Error	1.074411657
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	19.08546603	19.08546603	16.5333685	0.003602718
Residual	8	9.234883275	1.154360409		
Total	9	28.32034931			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.001264406	0.886290781	-1.129724496	0.291324774	-3.045055934	1.042527122	-3.045055934	1.042527122
X Variable 1	0.532097709	0.130861145	4.066124506	0.003602718	0.230331172	0.833864245	0.230331172	0.833864245

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.790242769
R Square	0.624483633
Adjusted R Square	0.577544087
Standard Error	1.269672289
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	21.44694606	21.44694606	13.30399819	0.006518212
Residual	8	12.89654178	1.612067722		
Total	9	34.34348784			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.600485871	1.04736284	-0.573331273	0.582173908	-3.015710473	1.814738732	-3.015710473	1.814738732
X Variable 1	0.564056663	0.154643491	3.647464625	0.006518212	0.207447903	0.920665424	0.207447903	0.920665424

ICM-6 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

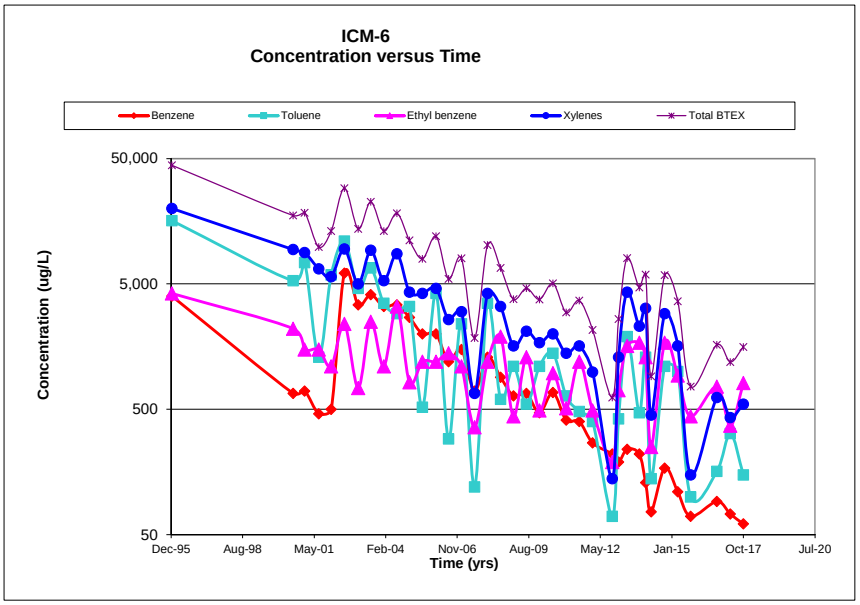
t = Time in years

k = Apparent first order rate constant (per year)

ICM-6	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.20	0.20	0.07	0.17	0.16
R^2	0.706	0.576	0.298	0.635	0.690
Half-life (yrs)	3.4	3.5	10.0	4.2	4.4

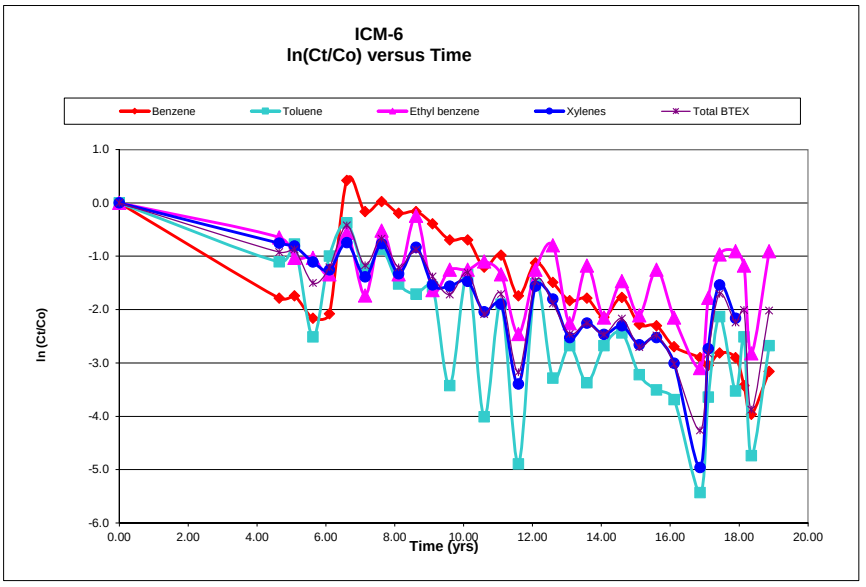
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Dec-95	4,000	16,000	4,200	20,000	44,200
Aug-00	670	5,300	2,200	9,400	17,570
Jan-01	700	7,400	1,500	8,900	18,500
Jul-01	460	1,300	1,500	6,600	9,860
Jan-02	500	5,900	1,100	5,700	13,200
Jul-02	6,100	11,000	2,400	9,500	29,000
Jan-03	3,400	4,600	740	5,000	13,740
Jul-03	4,100	6,700	2,500	9,300	22,600
Jan-04	3,300	3,500	1,100	5,300	13,200
Jul-04	3,400	2,900	3,300	8,700	18,300
Jan-05	2,700	3,300	820	4,300	11,120
Jul-05	2,000	520	1,200	4,200	7,920
Jan-06	2,000	4,200	1,200	4,600	12,000
Jul-06	1,200	290	1,400	2,600	5,490
Jan-07	1,500	2,400	1,100	3,000	8,000
Jul-07	700	120	360	670	1,850
Jan-08	1,300	3,500	1,200	4,200	10,200
Jul-08	900	600	1,900	3,300	6,700
Jan-09	640	1,100	440	1,600	3,780
Jul-09	670	550	1,300	2,100	4,620
Jan-10	470	1,100	490	1,700	3,760
Jul-10	680	1,400	970	2,000	5,050
Jan-11	410	640	510	1,400	2,960
Jul-11	400	480	1,200	1,600	3,680
Jan-12	270	400	490	990	2,150
Oct-12	220	70	190	140	620
Jan-13	190	420	710	1,300	2,620
May-13	240	1,900	1,600	4,300	8,040
Oct-13	220	470	1,700	2,300	4,690
Jan-14	130	1300	1300	3200	5930
Apr-14	76	140	250	450	916
Oct-14	170	1100	1700	2900	5870
Apr-15	110	1000	930	1600	3640
Oct-15	70	100	440	150	760
Oct-16	92	160	760	620	1632
Apr-17	73	320	370	430	1193
Oct-17	61	150	810	550	1571



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
4.64	-1.79	-1.10	-0.65	-0.76	-0.92
5.08	-1.74	-0.77	-1.03	-0.81	-0.87
5.62	-2.16	-2.51	-1.03	-1.11	-1.50
6.10	-2.08	-1.00	-1.34	-1.26	-1.21
6.61	0.42	-0.37	-0.56	-0.74	-0.42
7.14	-0.16	-1.25	-1.74	-1.39	-1.17
7.62	0.02	-0.87	-0.52	-0.77	-0.67
8.12	-0.19	-1.52	-1.34	-1.33	-1.21
8.62	-0.16	-1.71	-0.24	-0.83	-0.88
9.10	-0.39	-1.58	-1.63	-1.54	-1.38
9.59	-0.69	-3.43	-1.25	-1.56	-1.72
10.12	-0.69	-1.34	-1.25	-1.47	-1.30
10.59	-1.20	-4.01	-1.10	-2.04	-2.09
11.09	-0.98	-1.90	-1.34	-1.90	-1.71
11.59	-1.74	-4.89	-2.46	-3.40	-3.17
12.09	-1.12	-1.52	-1.25	-1.56	-1.47
12.59	-1.49	-3.28	-0.79	-1.80	-1.89
13.08	-1.83	-2.68	-2.26	-2.53	-2.46
13.58	-1.79	-3.37	-1.17	-2.25	-2.26
14.08	-2.14	-2.68	-2.15	-2.47	-2.46
14.59	-1.77	-2.44	-1.47	-2.30	-2.17
15.10	-2.28	-3.22	-2.11	-2.66	-2.70
15.60	-2.30	-3.51	-1.25	-2.53	-2.49
16.11	-2.70	-3.69	-2.15	-3.01	-3.02
16.86	-2.90	-5.43	-3.10	-4.96	-4.27
17.11	-3.05	-3.64	-1.78	-2.73	-2.83
17.43	-2.81	-2.13	-0.97	-1.54	-1.70
17.90	-2.90	-3.53	-0.90	-2.16	-2.24
18.14	-3.43	-2.51	-1.17	-1.83	-2.01
18.35	-3.96	-4.74	-2.82	-3.79	-3.88
18.87	-3.16	-2.68	-0.90	-1.93	-2.02
19.37	-3.59	-2.77	-1.51	-2.53	-2.50
19.87	-4.05	-5.08	-2.26	-4.89	-4.06
20.87	-3.77	-4.61	-1.71	-3.47	-3.30
21.39	-4.00	-3.91	-2.43	-3.84	-3.61
21.88	-4.18	-4.67	-1.65	-3.59	-3.34



ICM-6

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.191039983
R Square	0.036496275
Adjusted R Square	-0.070559694
Standard Error	1.007906761
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.346320637	0.346320637	0.340908363	0.573645582
Residual	9	9.142884354	1.015876039		
Total	10	9.489204991			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.209023478	0.844927691	-1.430919463	0.186244358	-3.120384163	0.702337207	-3.120384163	0.702337207
X Variable 1	0.07403945	0.12680733	0.583873585	0.573645582	-0.212818878	0.360897779	-0.212818878	0.360897779

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.552154057
R Square	0.304874103
Adjusted R Square	0.227637892
Standard Error	0.600045301
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.421240759	1.421240759	3.947294922	0.078201164
Residual	9	3.240489268	0.360054363		
Total	10	4.661730028			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.220396546	0.50301765	-0.438148733	0.671606307	-1.358302394	0.917509301	-1.358302394	0.917509301
X Variable 1	-0.149988453	0.075493236	-1.986780039	0.078201164	-0.320766147	0.02078924	-0.320766147	0.02078924

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.502961683
R Square	0.252970455
Adjusted R Square	0.169967172
Standard Error	0.517332272
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.815668471	0.815668471	3.047716264	0.114804913
Residual	9	2.408694117	0.26763268		
Total	10	3.224362587			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.209443856	0.433679363	-0.482946329	0.640664523	-1.190495481	0.771607769	-1.190495481	0.771607769
X Variable 1	-0.113626816	0.065086898	-1.745770966	0.114804913	-0.26086372	0.033610088	-0.26086372	0.033610088

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.779127982
R Square	0.607040412
Adjusted R Square	0.563378235
Standard Error	0.283909136
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.120652491	1.120652491	13.90311847	0.004706994
Residual	9	0.72543958	0.080604398		
Total	10	1.846092071			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.128559561	0.238000875	-0.540164236	0.602191873	-0.666955355	0.409836234	-0.666955355	0.409836234
X Variable 1	-0.133186277	0.035719335	-3.728688572	0.004706994	-0.213989089	-0.052383466	-0.213989089	-0.052383466

ICM-7 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

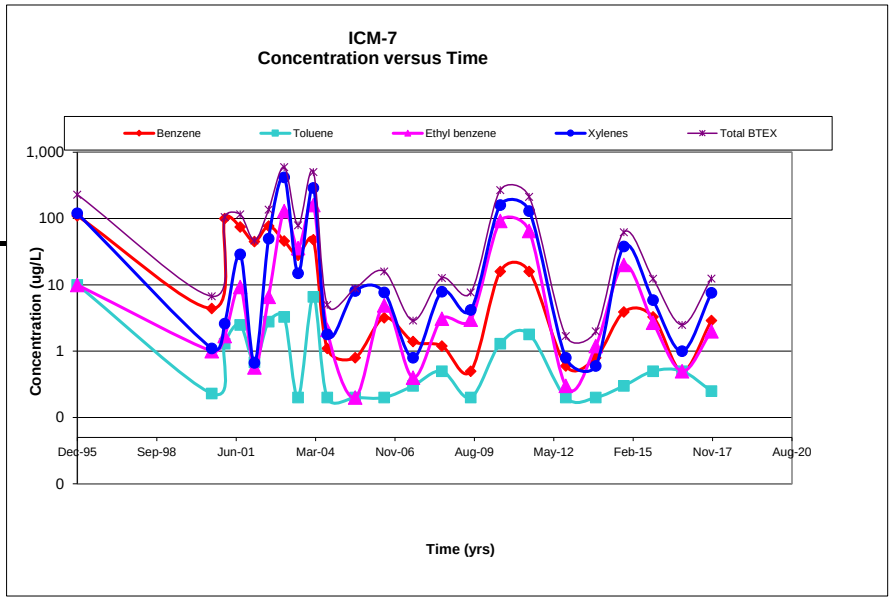
t = Time in years

k = Apparent first order rate constant (per year)

ICM-7	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Constant (per yr)	0.21	0.10	0.05	0.08	0.14
R^2	0.424	0.225	0.024	0.051	0.216
Half-life (yrs)	3.3	7.0	13.4	8.8	4.8

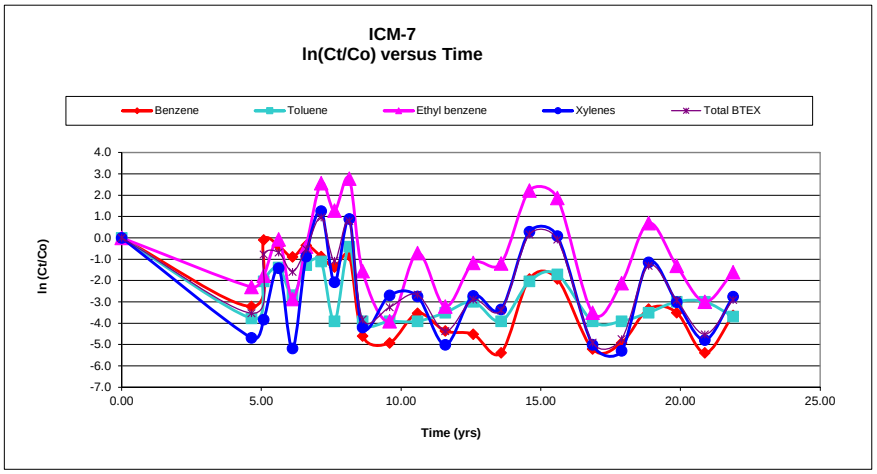
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Dec-95	110	10.0	10	120	230
Aug-00	4	0	1	1	6.73
Jan-01	100	1	2	3	105.6
Jul-01	75	3	9	29	115.8
Jan-02	45	1	1	1	46.92
Jul-02	77	3	7	50	136.4
Jan-03	46	3	130	420	599.3
Jul-03	28	0.2	36	15	79
Feb-04	48	6.6	160	290	504.6
Jul-04	1	0.2	2.1	1.8	5
Jul-05	1	0	0.2	8.1	8.9
Jul-06	3.2	0.2	4.9	7.7	16
Jul-07	1.4	0.3	0.4	0.8	2.9
Jul-08	1.2	0.5	3.1	7.9	12.7
Jul-09	0.5	0.2	3	4.2	7.7
Jul-10	16	1.3	92	160	269.3
Jul-11	16	1.8	65	130	212.8
Oct-12	0.6	0.2	0.3	0.8	1.7
Oct-13	0.8	0.2	1.2	0.6	2
Oct-14	3.9	0.3	20	38	62.2
Oct-15	3.3	0.5	2.7	5.9	12.4
Oct-16	0.5	0.5	0.5	1	2.5
Oct-17	2.9	0.25	2	7.6	12.5



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
4.64	-3.22	-3.77	-2.30	-4.69	-3.53
5.08	-0.10	-2.04	-1.77	-3.83	-0.78
5.62	-0.38	-1.39	-0.07	-1.42	-0.69
6.11	-0.89	-2.69	-2.86	-5.19	-1.59
6.60	-0.36	-1.27	-0.42	-0.88	-0.52
7.14	-0.87	-1.11	2.56	1.25	0.96
7.62	-1.37	-3.91	1.28	-2.08	-1.07
8.14	-0.83	-0.42	2.77	0.88	0.79
8.62	-4.61	-3.91	-1.56	-4.20	-3.83
9.59	-4.92	-3.91	-3.91	-2.70	-3.25
10.59	-3.54	-3.91	-0.71	-2.75	-2.67
11.58	-4.36	-3.51	-3.22	-5.01	-4.37
12.58	-4.52	-3.00	-1.17	-2.72	-2.90
13.58	-5.39	-3.91	-1.20	-3.35	-3.40
14.59	-1.93	-2.04	2.22	0.29	0.16
15.59	-1.93	-1.71	1.87	0.08	-0.08
16.85	-5.21	-3.91	-3.51	-5.01	-4.91
17.89	-4.92	-3.91	-2.12	-5.30	-4.74
18.85	-3.34	-3.51	0.69	-1.15	-1.31
19.86	-3.51	-3.00	-1.31	-3.01	-2.92
20.87	-5.39	-3.00	-3.00	-4.79	-4.52
21.88	-3.64	-3.69	-1.61	-2.76	-2.91



ICM-7

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.403672606
R Square	0.162951573
Adjusted R Square	0.05832052
Standard Error	1.447983013
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3.265313573	3.265313573	1.557392072	0.24733532
Residual	8	16.77323845	2.096654806		
Total	9	20.03855202			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.195031722	1.254281671	0.155492762	0.88028467	-2.69734887	3.087412313	-2.69734887	3.087412313
X Variable 1	-0.2463518	0.197404369	-1.247955156	0.24733532	-0.701567386	0.208863786	-0.701567386	0.208863786

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.406083508
R Square	0.164903815
Adjusted R Square	0.060516792
Standard Error	1.412472911
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3.15169691	3.15169691	1.579734821	0.244253117
Residual	8	15.96063779	1.995079724		
Total	9	19.1123347			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.619143167	1.22352187	-0.506033592	0.626479832	-3.440591482	2.202305149	-3.440591482	2.202305149
X Variable 1	-0.242027947	0.192563256	-1.256875022	0.244253117	-0.686079899	0.202024005	-0.686079899	0.202024005

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.252533597
R Square	0.063773217
Adjusted R Square	-0.05325513
Standard Error	2.012471289
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.20702189	2.20702189	0.544938202	0.481484634
Residual	8	32.4003255	4.050040687		
Total	9	34.60734739			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.435005103	1.743256536	-0.823174945	0.434258997	-5.454964484	2.584954277	-5.454964484	2.584954277
X Variable 1	0.202533382	0.274361385	0.738199297	0.481484634	-0.430145516	0.835212279	-0.430145516	0.835212279

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.049545424
R Square	0.002454749
Adjusted R Square	-0.122238407
Standard Error	2.499406121
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.122981036	0.122981036	0.019686318	0.89188504
Residual	8	49.97624768	6.247030959		
Total	9	50.09922871			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.732370658	2.165052531	-0.80015179	0.446730309	-6.724993977	3.26025266	-6.724993977	3.26025266
X Variable 1	-0.047809298	0.340745495	-0.140307939	0.89188504	-0.833570327	0.737951731	-0.833570327	0.737951731

ICM-9 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

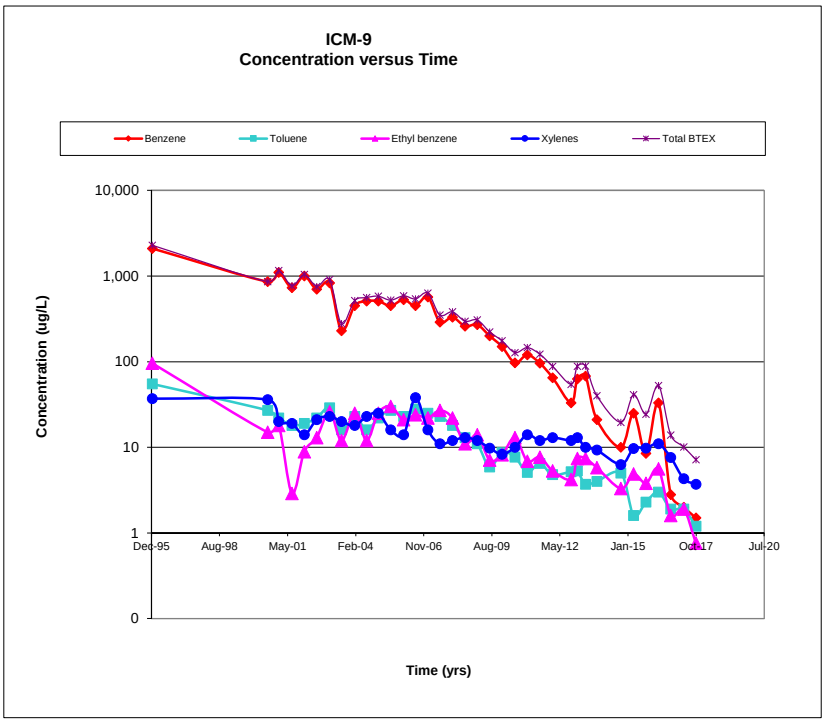
t = Time in years

k = Apparent first order rate constant (per year)

ICM-9	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.31	0.17	0.13	0.08	0.25
R^2	0.853	0.862	0.571	0.701	0.900
Half-life (yrs)	2.2	4.2	5.3	8.8	2.8

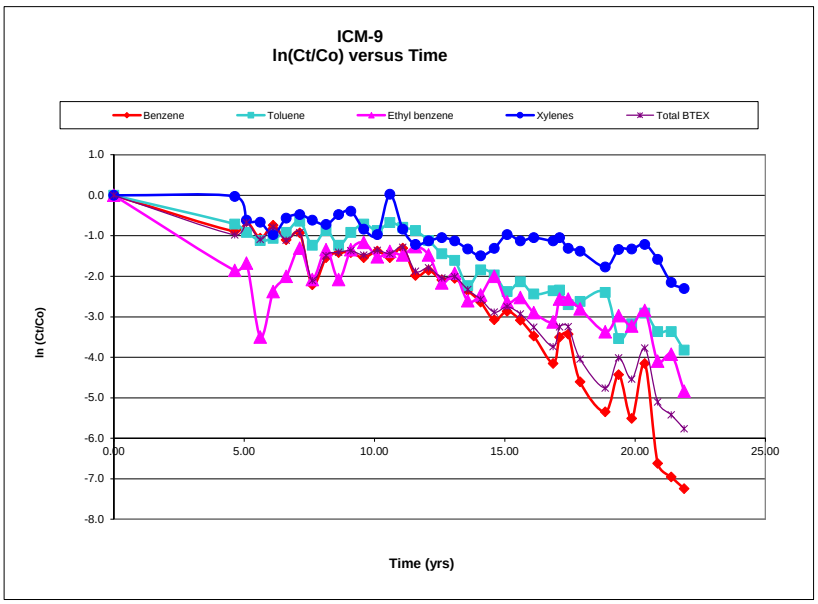
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Dec-95	2,100	55.0	96	37	2,288
Aug-00	860	27	15	36	860
Jan-01	1,100	22	18	20	1,160
Jul-01	730	18	3	19	770
Jan-02	1,000	19	9	14	1,042
Jul-02	700	22	13	21	756
Jan-03	830	29	26	23	908
Jul-03	230	16	12	20	278
Feb-04	450	23	25	18	516
Jul-04	510	16.0	12.0	23.0	561.0
Jan-05	510	22	25	25.0	582.0
Jul-05	450	27	30	16	523
Jan-06	530	23	21	14	588
Jul-06	450	28	24	38	540
Jan-07	570	25	22	16	633
Jul-07	290	23	27	11	351
Jan-08	330	18	22	12	382
Jul-08	260	13	11	13	297
Jan-09	270	11	14	12	307
Jul-09	200	5.9	7.1	9.8	222.8
Jan-10	150	8.7	8.2	8.3	175.2
Jul-10	97	7.7	13	10	127.7
Jan-11	120	5.1	6.9	14	146
Jul-11	96	6.5	7.7	12	122.2
Jan-12	65	4.8	5.3	13	88.1
Oct-12	33	5.2	4.2	12	54.4
Jan-13	63	5.3	7.4	13	88.7
May-13	68	3.7	7.4	10	89.1
Oct-13	21	4	5.8	9.3	40.1
Oct-14	10	5	3.3	6.3	19.6
Apr-15	25	1.6	4.9	9.7	41.2
Oct-15	8.5	2.3	3.8	9.8	24.4
Apr-16	33	3	5.6	11	52.6
Oct-16	2.8	1.9	1.6	7.6	13.9
Apr-17	2	1.9	1.9	4.3	10.1
Oct-17	1.5	1.2	0.76	3.7	7.16



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
4.64	-0.89	-0.71	-1.86	-0.03	-0.98
5.09	-0.65	-0.92	-1.67	-0.62	-0.68
5.62	-1.06	-1.12	-3.50	-0.67	-1.09
6.12	-0.74	-1.06	-2.38	-0.97	-0.79
6.62	-1.10	-0.92	-2.00	-0.57	-1.11
7.14	-0.93	-0.64	-1.31	-0.48	-0.92
7.62	-2.21	-1.23	-2.08	-0.62	-2.11
8.15	-1.54	-0.87	-1.35	-0.72	-1.49
8.63	-1.42	-1.23	-2.08	-0.48	-1.41
9.10	-1.42	-0.92	-1.35	-0.39	-1.37
9.59	-1.54	-0.71	-1.16	-0.84	-1.48
10.12	-1.38	-0.87	-1.52	-0.97	-1.36
10.59	-1.54	-0.68	-1.39	0.03	-1.44
11.09	-1.30	-0.79	-1.47	-0.84	-1.28
11.58	-1.98	-0.87	-1.27	-1.21	-1.87
12.08	-1.85	-1.12	-1.47	-1.13	-1.79
12.59	-2.09	-1.44	-2.17	-1.05	-2.04
13.08	-2.05	-1.61	-1.93	-1.13	-2.01
13.58	-2.35	-2.23	-2.60	-1.33	-2.33
14.08	-2.64	-1.84	-2.46	-1.49	-2.57
14.60	-3.07	-1.97	-2.00	-1.31	-2.89
15.09	-2.86	-2.38	-2.63	-0.97	-2.75
15.60	-3.09	-2.14	-2.52	-1.13	-2.93
16.12	-3.48	-2.44	-2.90	-1.05	-3.26
16.86	-4.15	-2.36	-3.13	-1.13	-3.74
17.11	-3.51	-2.34	-2.56	-1.05	-3.25
17.44	-3.43	-2.70	-2.56	-1.31	-3.25
17.89	-4.61	-2.62	-2.81	-1.38	-4.04
18.86	-5.35	-2.40	-3.37	-1.77	-4.76
19.37	-4.43	-3.54	-2.98	-1.34	-4.02
19.87	-5.51	-3.17	-3.23	-1.33	-4.54
20.37	-4.15	-2.91	-2.84	-1.21	-3.77
20.87	-6.62	-3.37	-4.09	-1.58	-5.10
21.39	-6.96	-3.37	-3.92	-2.15	-5.42
21.88	-7.24	-3.83	-4.84	-2.30	-5.77



ICM-9

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.811041889
R Square	0.657788946
Adjusted R Square	0.619765495
Standard Error	0.351233483
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.134159466	2.134159466	17.29955955	0.002450356
Residual	9	1.110284637	0.12336496		
Total	10	3.244444103			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.056563444	0.294438838	0.19210592	0.851923819	-0.609503991	0.722630878	-0.609503991	0.722630878
X Variable 1	-0.183796583	0.044189584	-4.159273921	0.002450356	-0.283760443	-0.083832724	-0.283760443	-0.083832724

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.773786
R Square	0.598744774
Adjusted R Square	0.55416086
Standard Error	0.231819265
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.721709784	0.721709784	13.42961441	0.00519789
Residual	9	0.483661545	0.053740172		
Total	10	1.205371329			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.210183611	0.194333964	-1.081558808	0.307575422	-0.649797914	0.229430693	-0.649797914	0.229430693
X Variable 1	-0.106882178	0.029165775	-3.664643831	0.00519789	-0.172859796	-0.040904561	-0.172859796	-0.040904561

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.400788009
R Square	0.160631028
Adjusted R Square	0.067367809
Standard Error	0.826817458
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.177438723	1.177438723	1.722340597	0.221873036
Residual	9	6.152643984	0.683627109		
Total	10	7.330082707			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.929752939	0.693120627	-1.341401343	0.212654582	-2.497701924	0.638196046	-2.497701924	0.638196046
X Variable 1	-0.136519018	0.104024021	-1.312379746	0.221873036	-0.371837883	0.098799846	-0.371837883	0.098799846

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.52780014
R Square	0.278572988
Adjusted R Square	0.198414431
Standard Error	0.255769117
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.227344955	0.227344955	3.475274491	0.095173085
Residual	9	0.588760572	0.065417841		
Total	10	0.816105528			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.129399778	0.214411112	-0.603512463	0.561068092	-0.614431782	0.355632225	-0.614431782	0.355632225
X Variable 1	-0.059988315	0.032178967	-1.864208811	0.095173085	-0.132782252	0.012805623	-0.132782252	0.012805623

ICM-10 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

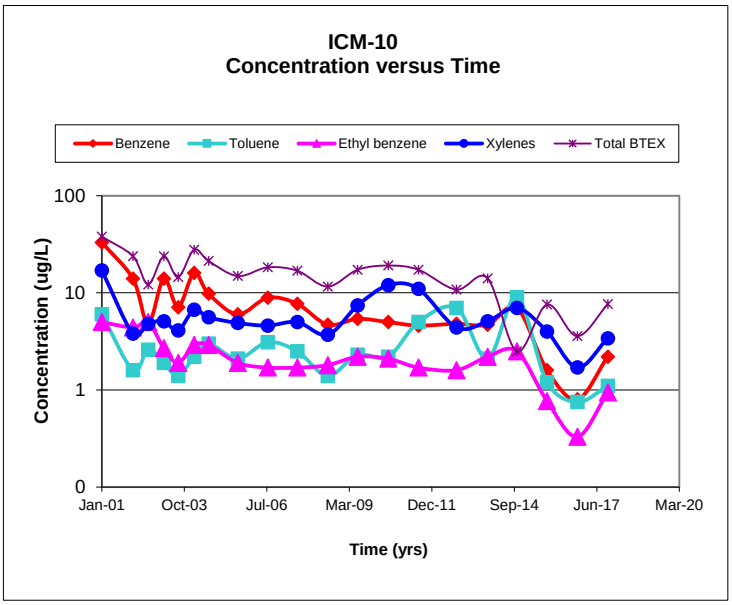
t = Time in years

k = Apparent first order rate constant (per year)

ICM-10	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.12	0.02	0.09	0.03	0.09
R^2	0.653	0.020	0.591	0.097	0.572
Half-life (yrs)	5.6	41.1	7.6	23.8	7.5

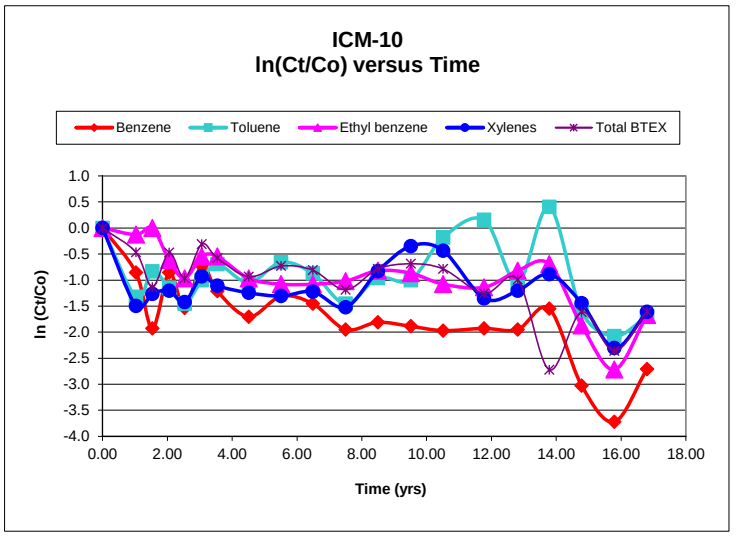
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jan-01	33	6.0	5	17	38
Jan-02	14	2	4	4	23.8
Jul-02	5	3	5	5	12.2
Jan-03	14	2	3	5	23.7
Jul-03	7	1	2	4	14.5
Feb-04	16	2	3	7	27.8
Jul-04	10	3	3	6	21.3
Jul-05	6	2.1	1.9	4.9	14.9
Jul-06	8.9	3.1	1.7	4.6	18.3
Jul-07	8	2.5	1.7	5.0	16.9
Jul-08	4.7	1.4	1.8	3.7	11.6
Jul-09	5.4	2.3	2.2	7.4	17.3
Jul-10	5	2.2	2.1	12	19.1
Jul-11	4.6	5	1.7	11	17.3
Oct-12	4.8	7	1.6	4.4	10.8
Oct-13	4.7	2.1	2.2	5.1	14.1
Oct-14	7	9	2.5	7	2.5
Oct-15	1.6	1.2	0.77	4	7.57
Oct-16	0.8	0.75	0.33	1.7	3.58
Oct-17	2.2	1.1	0.94	3.4	7.64



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
1.03	-0.86	-1.32	-0.13	-1.50	-0.47
1.54	-1.93	-0.84	0.00	-1.26	-1.14
2.05	-0.86	-1.15	-0.62	-1.20	-0.47
2.53	-1.54	-1.46	-0.97	-1.42	-0.96
3.06	-0.72	-1.00	-0.54	-0.93	-0.31
3.54	-1.21	-0.69	-0.54	-1.11	-0.58
4.51	-1.70	-1.05	-0.97	-1.24	-0.94
5.51	-1.31	-0.66	-1.08	-1.31	-0.73
6.49	-1.46	-0.88	-1.08	-1.22	-0.81
7.50	-1.95	-1.46	-1.02	-1.52	-1.19
8.49	-1.81	-0.96	-0.82	-0.83	-0.79
9.51	-1.89	-1.00	-0.87	-0.35	-0.69
10.51	-1.97	-0.18	-1.08	-0.44	-0.79
11.77	-1.93	0.15	-1.14	-1.35	-1.26
12.81	-1.95	-1.05	-0.82	-1.20	-0.99
13.78	-1.55	0.41	-0.69	-0.89	-2.72
14.78	-3.03	-1.61	-1.87	-1.45	-1.61
15.79	-3.72	-2.08	-2.72	-2.30	-2.36
16.80	-2.71	-1.70	-1.67	-1.61	-1.60



ICM-10

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.444651769
R Square	0.197715196
Adjusted R Square	0.037258235
Standard Error	0.608744912
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.456617104	0.456617104	1.232200801	0.31749127
Residual	5	1.852851837	0.370570367		
Total	6	2.30946894			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.57546059	0.459323379	-1.252844108	0.265662755	-1.756186996	0.605265817	-1.756186996	0.605265817
X Variable 1	-0.228979294	0.206279214	-1.110045405	0.31749127	-0.759236028	0.30127744	-0.759236028	0.30127744

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.425010001
R Square	0.180633501
Adjusted R Square	0.016760201
Standard Error	0.481124153
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.255155198	0.255155198	1.102275362	0.341840113
Residual	5	1.157402254	0.231480451		
Total	6	1.412557452			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.592931514	0.363028204	-1.633293245	0.163335502	-1.526123696	0.340260669	-1.526123696	0.340260669
X Variable 1	-0.171167904	0.163033662	-1.049893024	0.341840113	-0.59025859	0.247922781	-0.59025859	0.247922781

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.724062391
R Square	0.524266346
Adjusted R Square	0.429119615
Standard Error	0.276729605
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.421958127	0.421958127	5.510082603	0.065775853
Residual	5	0.382896371	0.076579274		
Total	6	0.804854498			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.024059889	0.208804008	0.115227139	0.912749581	-0.512687024	0.560806801	-0.512687024	0.560806801
X Variable 1	-0.220117617	0.093772555	-2.347356514	0.065775853	-0.461167248	0.020932015	-0.461167248	0.020932015

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.467511835
R Square	0.218567316
Adjusted R Square	0.062280779
Standard Error	0.48876859
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.334095194	0.334095194	1.3985038	0.290139908
Residual	5	1.194473674	0.238894735		
Total	6	1.528568868			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.684038832	0.36879625	-1.854787928	0.122790621	-1.632058224	0.26398056	-1.632058224	0.26398056
X Variable 1	-0.195864279	0.165624055	-1.182583528	0.290139908	-0.62161377	0.229885212	-0.62161377	0.229885212

KM-GP5 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

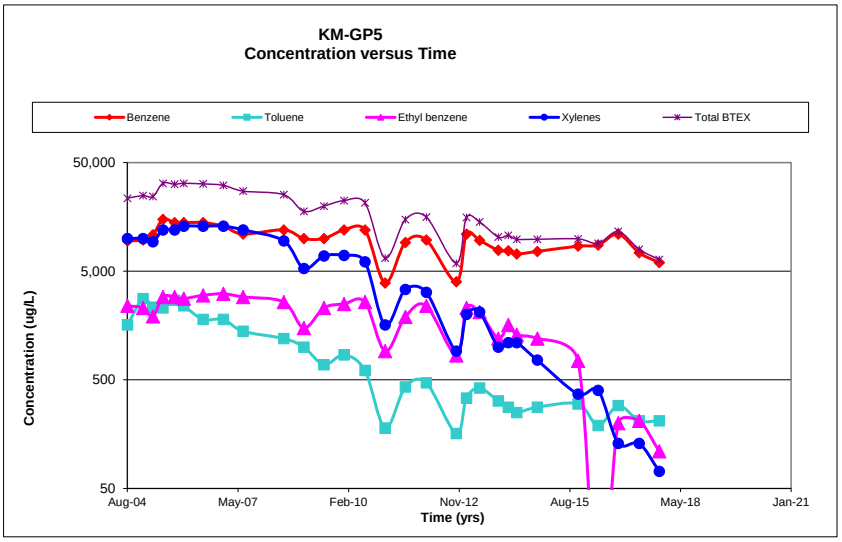
t = Time in years

r = Apparent first order rate constant (per year)

KM-GP5	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.04	0.21	0.22	0.35	0.11
R^2	0.301	0.854	0.416	0.881	0.739
Half-life (yrs)	15.8	3.2	3.1	2.0	6.2

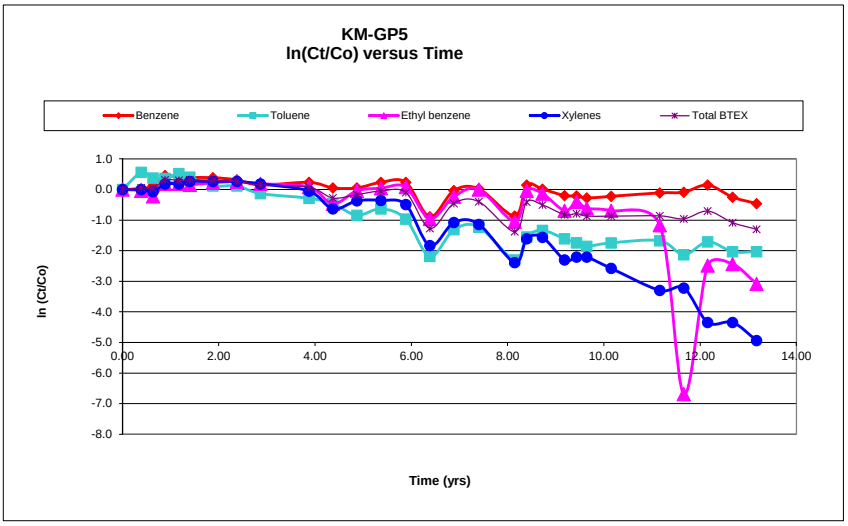
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Aug-04	9,500	1,600.0	2,400	10,000	23500
Jan-05	9,700	2,800	2,300	10,000	24800
Apr-05	10,800	2,330	1,920	9,310	24360
Jul-05	15,000	2,300	2,900	12,000	32200
Oct-05	14,000	2,700	2,900	12,000	31600
Jan-06	14,000	2,400	2,800	13,000	32200
Jul-06	14,000	1,800	3,000	13,000	31800
Jan-07	13000	1800	3100	13000	30900
Jul-07	11000	1400	2900	12000	27300
Jul-08	12000	1200	2600	9500	25300
Jan-09	10000	1000	1500	5300	17800
Jul-09	10000	690	2300	6900	19890
Jan-10	12000	850	2500	7000	22350
Jul-10	12000	610	2600	6100	21310
Jan-11	3900	180	920	1600	6600
Jul-11	9200	430	1900	3400	14930
Jan-12	9700	470	2400	3200	15770
Oct-12	4000	160	840	920	5920
Jan-13	11000	340	2300	2000	15640
May-13	9600	420	2100	2100	14220
Oct-13	7800	320	1200	1000	10320
Jan-14	7700	280	1600	1100	10680
Apr-14	7200	250	1300	1100	9850
Oct-14	7600	280	1200	760	9840
Oct-15	8500	300	750	370	9920
Apr-16	8700	190	3	400	9020
Oct-16	11000	290	200	130	11620
Apr-17	7400	210	210	130	7950
Oct-17	6000	210	110	72	6392



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.39	0.02	0.56	-0.04	0.00	0.05
0.63	0.13	0.38	-0.22	-0.07	0.04
0.88	0.46	0.36	0.19	0.18	0.31
1.17	0.39	0.52	0.19	0.18	0.30
1.40	0.39	0.41	0.15	0.26	0.31
1.88	0.39	0.12	0.22	0.26	0.30
2.38	0.31	0.12	0.26	0.26	0.27
2.87	0.15	-0.13	0.19	0.18	0.15
3.87	0.23	-0.29	0.08	-0.05	0.07
4.37	0.05	-0.47	-0.47	-0.63	-0.28
4.87	0.05	-0.84	-0.04	-0.37	-0.17
5.37	0.23	-0.63	0.04	-0.36	-0.05
5.88	0.23	-0.96	0.08	-0.49	-0.10
6.38	-0.89	-2.18	-0.96	-1.83	-1.27
6.88	-0.03	-1.31	-0.23	-1.08	-0.45
7.40	0.02	-1.23	0.00	-1.14	-0.40
8.15	-0.86	-2.30	-1.05	-2.39	-1.38
8.40	0.15	-1.55	-0.04	-1.61	-0.41
8.72	0.01	-1.34	-0.13	-1.56	-0.50
9.18	-0.20	-1.61	-0.69	-2.30	-0.82
9.43	-0.21	-1.74	-0.41	-2.21	-0.79
9.64	-0.28	-1.86	-0.61	-2.21	-0.87
10.15	-0.22	-1.74	-0.69	-2.58	-0.87
11.16	-0.11	-1.67	-1.16	-3.30	-0.86
11.66	-0.09	-2.13	-6.68	-3.22	-0.96
12.16	0.15	-1.71	-2.48	-4.34	-0.70
12.67	-0.25	-2.03	-2.44	-4.34	-1.08
13.17	-0.46	-2.03	-3.08	-4.93	-1.30



KM-GP5

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

KM-GP13 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

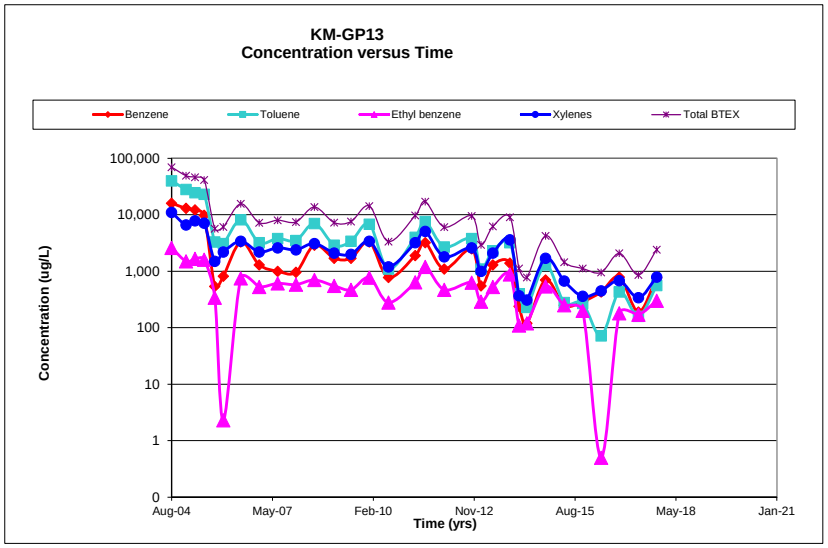
t = Time in years

r = Apparent first order rate constant (per year)

KM-GP13	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.21	0.33	0.15	0.18	0.24
R^2	0.489	0.714	0.122	0.595	0.644
Half-life (yrs)	3.3	2.1	4.7	3.8	2.9

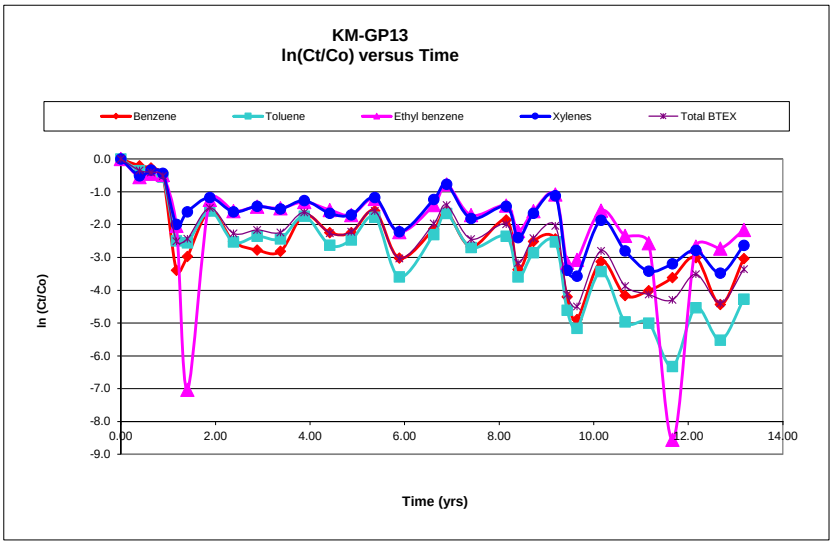
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Aug-04	16,000	40,000.0	2,600	11,000	69600
Jan-05	13,000	28,000	1,500	6,600	49100
Apr-05	12,200	24,600	1,660	7,820	46280
Jul-05	9,800	23,000	1,600	7,100	41500
Oct-05	540	3,300	340	1,500	5680
Jan-06	820	3,100	2	2,200	6122.3
Jul-06	3,300	8,200	750	3,400	15650
Jan-07	1300	3200	530	2200	7230
Jul-07	1000	3800	610	2600	8010
Jan-08	960	3500	580	2400	7440
Jul-08	2,900	7,000	700	3,100.0	13700
Jan-09	1700	2900	550	2100	7250
Jul-09	1700	3400	470	2000	7570
Jan-10	3300	6800	770	3400	14270
Jul-10	780	1100	280	1200	3360
Apr-11	1900	4000	640	3200	9740
Jul-11	3200	7600	1200	5100	17100
Jan-12	1100	2700	470	1800	6070
Oct-12	2500	3800	630	2600	9530
Jan-13	550	1100	290	1000	2940
May-13	1300	2300	530	2100	6230
Oct-13	1400	3200	880	3600	9080
Jan-14	240	400	110	370	1120
Apr-14	120	230	120	310	780
Oct-14	700	1300	540	1700	4240
Apr-15	250	280	250	670	1450
Oct-15	290	270	200	360	1120
Apr-16	430	72	0.5	450	952
Oct-16	790	430	180	680	2080
Apr-17	190	160	170	340	860
Oct-17	770	560	300	790	2420



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.39	-0.21	-0.36	-0.55	-0.51	-0.35
0.64	-0.27	-0.49	-0.45	-0.34	-0.41
0.88	-0.49	-0.55	-0.49	-0.44	-0.52
1.17	-3.39	-2.49	-2.03	-1.99	-2.51
1.41	-2.97	-2.56	-7.03	-1.61	-2.43
1.88	-1.58	-1.58	-1.24	-1.17	-1.49
2.38	-2.51	-2.53	-1.59	-1.61	-2.26
2.88	-2.77	-2.35	-1.45	-1.44	-2.16
3.38	-2.81	-2.44	-1.50	-1.52	-2.24
3.88	-1.71	-1.74	-1.31	-1.27	-1.63
4.42	-2.24	-2.62	-1.55	-1.66	-2.26
4.87	-2.24	-2.47	-1.71	-1.70	-2.22
5.37	-1.58	-1.77	-1.22	-1.17	-1.58
5.89	-3.02	-3.59	-2.23	-2.22	-3.03
6.62	-2.13	-2.30	-1.40	-1.23	-1.97
6.89	-1.61	-1.66	-0.77	-0.77	-1.40
7.41	-2.68	-2.70	-1.71	-1.81	-2.44
8.15	-1.86	-2.35	-1.42	-1.44	-1.99
8.40	-3.37	-3.59	-2.19	-2.40	-3.16
8.73	-2.51	-2.86	-1.59	-1.66	-2.41
9.19	-2.44	-2.53	-1.08	-1.12	-2.04
9.44	-4.20	-4.61	-3.16	-3.39	-4.13
9.65	-4.89	-5.16	-3.08	-3.57	-4.49
10.15	-3.13	-3.43	-1.57	-1.87	-2.80
10.66	-4.16	-4.96	-2.34	-2.80	-3.87
11.16	-4.01	-5.00	-2.56	-3.42	-4.13
11.66	-3.62	-6.32	-8.56	-3.20	-4.29
12.16	-3.01	-4.53	-2.67	-2.78	-3.51
12.68	-4.43	-5.52	-2.73	-3.48	-4.39
13.18	-3.03	-4.27	-2.16	-2.63	-3.36



KM-GP13

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

L-8 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

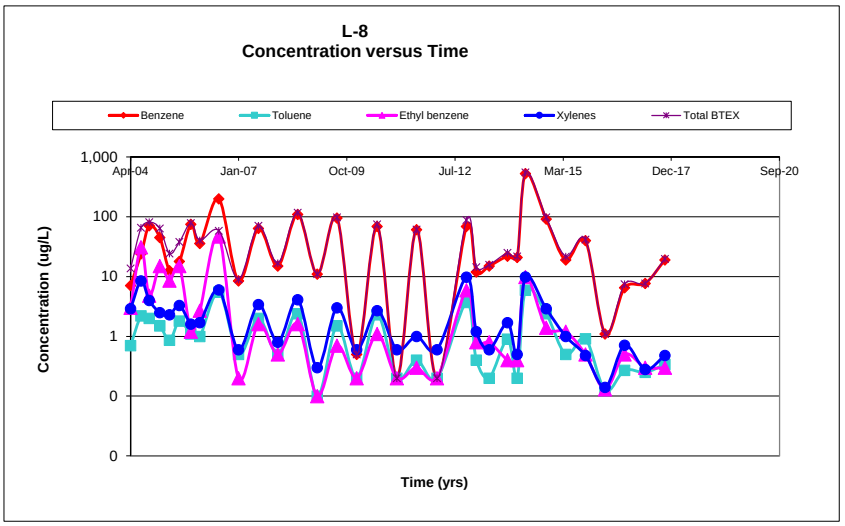
t = Time in years

r = Apparent first order rate constant (per year)

L-8	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.07	0.10	0.21	0.13	0.09
R^2	0.025	0.147	0.290	0.246	0.044
Half-life (yrs)	10.5	6.9	3.4	5.5	7.9

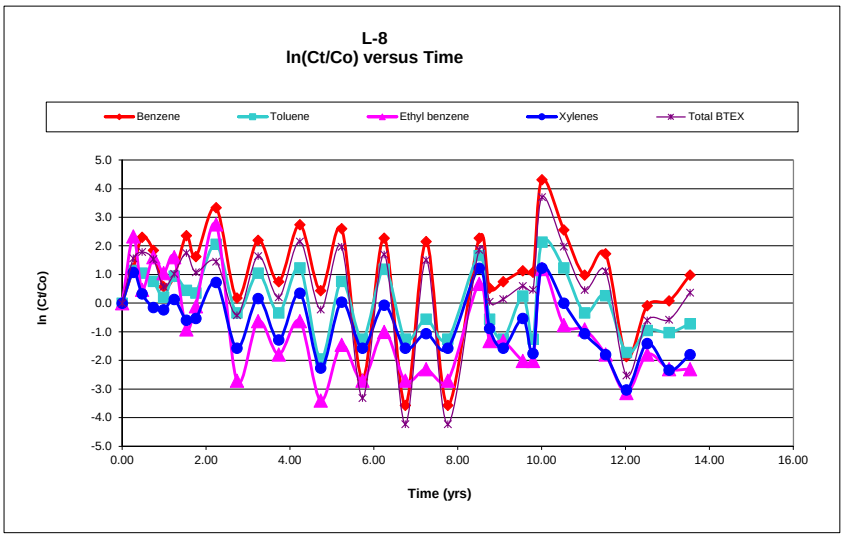
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Apr-04	7	0.7	3	3	13.7
Jul-04	24	2	31	9	65.7
Oct-04	71	2	5	4	81.8
Jan-05	45	2	15	3	64
Apr-05	13	1	9	2	24.36
Jul-05	18	2	15	3	38.1
Oct-05	75	1	1	2	78.9
Jan-06	36	1	2.7	1.7	40.4
Jul-06	200	5.5	47	6	58.5
Jan-07	9	0.5	0.2	0.6	9
Jul-07	64	2.0	1.6	3.4	71
Jan-08	15	0.5	0.5	0.8	16.8
Jul-08	110	2.4	1.6	4.1	118.1
Jan-09	11	0.1	0.1	0.3	11
Jul-09	96	1.5	0.7	3	98.2
Jan-10	0.5	0.2	0.2	0.6	0.5
Jul-10	69	2.3	1.1	2.7	75.1
Jan-11	0.2	0.2	0.2	0.6	0.2
Jul-11	61	0.4	0.3	1	61.7
Jan-12	0.2	0.2	0.2	0.6	0.2
Oct-12	69	3.7	5.9	9.8	88.4
Jan-13	12	0.4	0.8	1.2	14.4
May-13	15	0.2	0.8	0.6	15.8
Nov-13	22	0.9	0.4	1.7	25
Jan-14	21	0.2	0.4	0.5	21.9
Apr-14	530	5.9	9.9	9.9	555.7
Oct-14	92	2.4	1.4	2.9	98.7
Apr-15	19	0.5	1.2	1	21.7
Oct-15	40	0.91	0.5	0.48	41.89
Apr-16	1.1	0.125	0.13	0.14	1.1
Oct-16	6.5	0.27	0.5	0.71	7.48
Apr-17	7.7	0.25	0.3	0.28	7.7
Oct-17	19	0.34	0.3	0.48	19.82



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.27	1.22	1.15	2.34	1.08	1.57
0.47	2.30	1.05	0.47	0.32	1.79
0.74	1.85	0.76	1.61	-0.15	1.54
0.99	0.57	0.21	1.05	-0.23	0.58
1.24	0.93	0.94	1.61	0.13	1.02
1.53	2.36	0.45	-0.92	-0.59	1.75
1.76	1.62	0.36	-0.11	-0.53	1.08
2.24	3.34	2.06	2.75	0.73	1.45
2.73	0.18	-0.34	-2.71	-1.58	-0.42
3.24	2.20	1.05	-0.63	0.16	1.65
3.73	0.75	-0.34	-1.79	-1.29	0.20
4.24	2.74	1.23	-0.63	0.35	2.15
4.73	0.44	-1.95	-3.40	-2.27	-0.22
5.23	2.60	0.76	-1.46	0.03	1.97
5.73	-2.65	-1.25	-2.71	-1.58	-3.31
6.25	2.27	1.19	-1.00	-0.07	1.70
6.75	-3.57	-1.25	-2.71	-1.58	-4.23
7.25	2.15	-0.56	-2.30	-1.06	1.50
7.76	-3.57	-1.25	-2.71	-1.58	-4.23
8.51	2.27	1.67	0.68	1.22	1.86
8.76	0.52	-0.56	-1.32	-0.88	0.05
9.08	0.75	-1.25	-1.32	-1.58	0.14
9.55	1.13	0.25	-2.01	-0.53	0.60
9.79	1.08	-1.25	-2.01	-1.76	0.47
10.01	4.31	2.13	1.19	1.23	3.70
10.53	2.56	1.23	-0.76	0.00	1.97
11.02	0.98	-0.34	-0.92	-1.06	0.46
11.52	1.73	0.26	-1.79	-1.80	1.12
12.02	-1.86	-1.72	-3.14	-3.03	-2.52
12.52	-0.09	-0.95	-1.79	-1.41	-0.61
13.04	0.08	-1.03	-2.30	-2.34	-0.58
13.54	0.98	-0.72	-2.30	-1.80	0.37



L-8

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

L-27 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

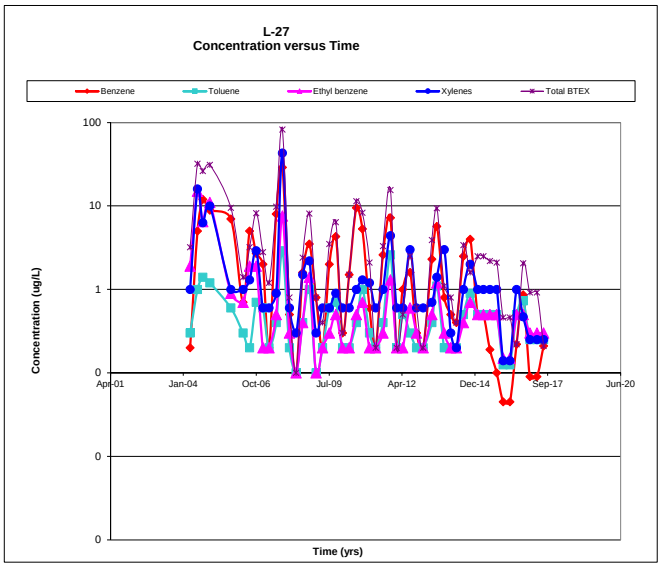
t = Time in years

r = Apparent first order rate constant (per year)

L-27	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.21	0.04	0.14	0.13	0.17
R^2	0.259	0.033	0.225	0.228	0.206
Half-life (yrs)	3.3	19.5	5.1	5.1	4.0

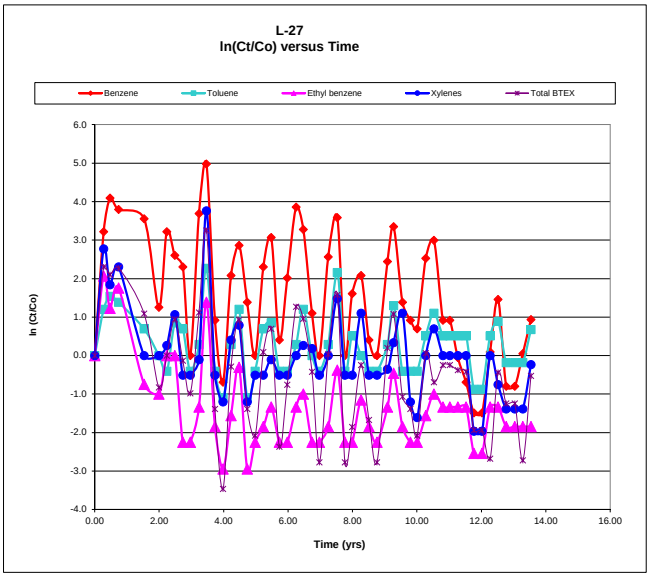
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Apr-04	0.2	0.3	2	1	3.2
Jul-04	5	1	15	16	32
Oct-04	12	1	7	6	26.2
Jan-05	9	1	11	10	31.1
Oct-05	7	1	1	1	9.5
Apr-06	1	0	1	1	1.4
Jul-06	5	0	2	1	3.2
Oct-06	2.7	0.7	1.9	2.9	8.2
Jan-07	2	0.6	0.2	0.6	2.8
Apr-07	0.2	0.2	0.2	0.6	1.2
Jul-07	8	0.4	0.5	0.9	9.8
Oct-07	29	2.9	7.6	43	82.5
Jan-08	0.5	0.2	0.3	0.6	0.8
Apr-08	0.1	0.1	0.1	0.3	0.1
Jul-08	1.6	0.4	0.4	1.5	2.4
Oct-08	3.5	1	1.4	2.2	8.1
Jan-09	0.8	0.1	0.1	0.3	0.8
Apr-09	0.2	0.2	0.2	0.6	0.4
Jul-09	2	0.6	0.3	0.6	3.5
Oct-09	4.3	0.7	0.5	0.9	6.4
Jan-10	0.3	0.2	0.2	0.6	0.3
Apr-10	1.5	0.2	0.2	0.6	1.5
Jul-10	9.5	0.4	0.5	1	11.4
Oct-10	5.3	1	0.7	1.3	8.3
Jan-11	0.6	0.3	0.2	1.2	2.1
Apr-11	0.2	0.2	0.2	0.6	0.2
Jul-11	2.6	0.4	0.3	1	3.3
Oct-11	7.2	2.6	1.3	4.4	15.5
Jan-12	0.2	0.2	0.2	0.6	0.2
Apr-12	1	0.5	0.2	0.6	0.5
Jul-12	1.6	0.3	0.6	3	2.5
Oct-12	0.3	0.2	0.3	0.6	0.6
Jan-13	0.2	0.2	0.2	0.6	0.2
May-13	2.3	0.4	0.5	0.7	3.9
Jul-13	5.7	1.1	1.2	1.4	9.4
Nov-13	0.8	0.2	0.3	3	1.1
Jan-14	0.5	0.2	0.2	0.3	0.8
Apr-14	0.4	0.2	0.2	0.2	0.4
Jul-14	2.5	0.5	0.4	1	3.4
Oct-14	4	0.9	0.7	2	1.6
Feb-15	0.5	0.5	0.5	1	2.5
Apr-15	0.5	0.5	0.5	1	2.5
Jul-15	0.19	0.5	0.5	1	2.19
Oct-15	0.1	0.5	0.5	1	2.1
Jan-16	0.045	0.125	0.15	0.14	0.46
Apr-16	0.045	0.125	0.15	0.14	0.46
Jul-16	0.22	0.5	0.5	1	0.22
Oct-16	0.86	0.73	0.5	0.47	2.06
Jan-17	0.09	0.25	0.3	0.25	0.92
Apr-17	0.09	0.25	0.3	0.25	0.92
Jul-17	0.21	0.25	0.3	0.25	0.21
Oct-17	0.51	0.59	0.3	0.79	1.89



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.28	3.22	1.20	2.07	2.77	2.30
0.47	4.09	1.54	1.23	1.84	2.10
0.74	3.80	1.39	1.76	2.30	2.27
1.53	3.56	0.69	-0.75	0.00	1.09
1.99	1.25	0.00	-1.00	0.00	-0.83
2.24	3.22	-0.41	0.00	0.26	0.00
2.48	2.60	0.85	0.00	1.06	0.94
2.73	2.30	0.69	-2.25	-0.51	-0.13
2.96	0.00	-0.41	-2.25	-0.51	-0.98
3.24	3.69	0.29	-1.34	-0.11	1.12
3.47	4.98	2.27	1.39	3.76	3.25
3.73	0.92	-0.41	-1.85	-0.51	-1.39
3.98	-0.69	-1.10	-2.94	-1.20	-3.47
4.23	2.08	0.29	-1.56	0.41	-0.29
4.48	2.86	1.20	-0.31	0.79	0.93
4.73	1.39	-1.10	-2.94	-1.20	-1.39
4.98	0.00	-0.41	-2.25	-0.51	-2.08
5.23	2.30	0.69	-1.85	-0.51	0.09
5.48	3.07	0.85	-1.34	-0.11	0.69
5.73	0.41	-0.41	-2.25	-0.51	-2.37
5.98	2.01	-0.41	-2.25	-0.51	-0.76
6.25	3.86	0.29	-1.34	0.00	1.27
6.47	3.28	1.20	-1.00	0.26	0.95
6.74	1.10	0.00	-2.25	0.18	-0.42
6.97	0.00	-0.41	-2.25	-0.51	-2.77
7.25	2.56	0.29	-1.85	0.00	0.03
7.53	3.58	2.16	-0.38	1.48	1.58
7.76	0.00	-0.41	-2.25	-0.51	-2.77
7.99	1.61	0.51	-2.25	-0.51	-1.86
8.27	2.08	0.00	-1.15	1.10	-0.25
8.51	0.41	-0.41	-1.85	-0.51	-1.67
8.76	0.00	-0.41	-2.25	-0.51	-2.77
9.08	2.44	0.29	-1.34	-0.36	0.20
9.27	3.35	1.30	-0.46	0.34	1.08
9.55	1.39	-0.41	-1.85	1.10	-1.07
9.80	0.92	-0.41	-2.25	-1.20	-1.39
10.01	0.69	-0.41	-2.25	-1.61	-2.08
10.27	2.53	0.51	-1.56	0.00	0.06
10.53	3.00	1.10	-1.00	0.69	-0.69
10.81	0.92	0.51	-1.34	0.00	-0.25
11.02	0.92	0.51	-1.34	0.00	-0.25
11.27	-0.05	0.51	-1.34	0.00	-0.38
11.52	-0.69	0.51	-1.34	0.00	-0.42
11.77	-1.49	-0.88	-2.54	-1.97	-1.94
12.02	-1.49	-0.88	-2.54	-1.97	-1.94
12.27	0.10	0.51	-1.34	0.00	-2.68
12.52	1.46	0.89	-1.34	-0.76	-0.44
12.77	-0.80	-0.18	-1.85	-1.39	-1.25
13.04	-0.80	-0.18	-1.85	-1.39	-1.25
13.28	0.05	-0.18	-1.85	-1.39	-2.72
13.54	0.94	0.68	-1.85	-0.24	-0.53



L-27

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

MW-103 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

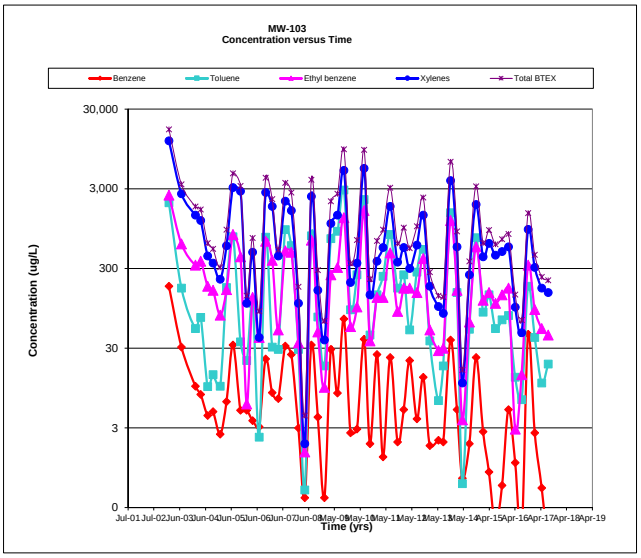
t = Time in years

k = Apparent first order rate constant (per year)

MW-103	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Constant (per yr)	0.16	0.05	0.10	0.10	0.10
R^2	0.180	0.012	0.075	0.073	0.071
Half-life (yrs)	4.3	14.1	7.0	7.0	7.1

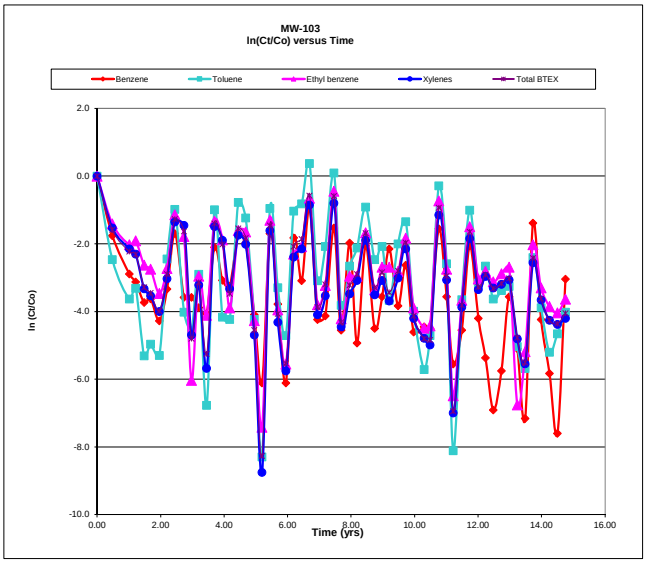
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jan-03	180	2,000.0	2,500	12,000	16680
Jul-03	31	170	610	2,600	3411
Feb-04	10	53	330	1,400	1793
Apr-04	8	73	370	1,200	1650.9
Jul-04	4	10	180	430	624.2
Oct-04	5	14	160	350	528.8
Jan-05	3	10	78	220	310.5
Apr-05	6.4	173	163	579	921.4
Jul-05	33	750	800	3100	4683
Oct-05	5	36.0	420.0	2,800	3256
Jan-06	5	21	6	110.0	137
Apr-06	4	110	130	480.0	723.7
Jul-06	3	2	41	41.0	87.4
Oct-06	22	740	660	2,700	4122
Jan-07	8	31	380	1,800	2219.3
Apr-07	7	29	51	430	517
Jul-07	32	920	500	2,100	3552
Oct-07	25	580	480	1,600	2685
Jan-08	3	29	35	110	177
Apr-08	0.4	1	1.5	1.9	4.3
Jul-08	33	770	680	2,400	3883
Oct-08	4.1	74	48	160	286.1
Jan-09	0.4	18	9.7	38	66.1
Apr-09	29.0	710	250	1,100	2089
Jul-09	8.2	880	310	1,400	2598.2
Oct-09	70.0	2,900	1300	5,100	9370
Jan-10	2.6	91	56	200	349.6
Apr-10	2.9	250	99	350	681.9
Jul-10	39.0	2,200	1600	5,400	9239
Oct-10	1.9	44	37	140	222.9
Jan-11	25.0	140	130	370	665
Apr-11	1.3	240	130	550	921.3
Jul-11	23.0	800	470	1,800	3093
Oct-11	2.0	170	87	360	619
Jan-12	5.1	250	170	550	975.1
Apr-12	21.0	51	170	300	540
Jul-12	3.9	270	150	590	1013.9
Oct-12	13.0	520	400	1,400	2333
Jan-13	1.8	37	51	180	269.8
May-13	2.1	7	28	100	136.7
Jul-13	2.0	18	30	82	132
Nov-13	38.0	1,500	1200	3,800	6538
Jan-14	5.1	150	160	560	875.1
Apr-14	0.7	0.6	3.8	11	16.1
Jul-14	1.9	52	64	250	367.9
Oct-14	23	730	560	1900	3213
Jan-15	2.7	85	120	420	627.7
Apr-15	0.84	140	150	620	910.84
Jul-15	0.18	53	110	440	603.18
Oct-15	0.57	68	140	490	698.57
Jan-16	5.1	77	170	560	812.1
Apr-16	1.1	13	2.9	98	141.1
Jul-16	0.14	6.8	14	47	67.94
Oct-16	45	180	330	930	1485
Jan-17	2.6	41	92	310	446
Apr-17	0.53	11	53	170	234.53
Jul-17	0.09	19	44	150	213
Oct-17	8.6	36	66	180	290.6



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.48	-1.76	-2.47	-1.41	-1.53	-1.59
1.01	-2.89	-3.63	-2.02	-2.15	-2.23
1.21	-3.13	-3.31	-1.91	-2.30	-2.31
1.48	-3.73	-5.31	-2.63	-3.33	-3.29
1.68	-3.62	-4.96	-2.75	-3.53	-3.45
1.96	-4.28	-5.30	-3.47	-4.00	-3.98
2.20	-3.34	-2.45	-2.73	-3.03	-2.90
2.45	-1.70	-0.98	-1.14	-1.35	-1.27
2.74	-3.58	-4.02	-1.78	-1.46	-1.63
2.97	-3.58	-4.56	-6.03	-4.69	-4.80
3.20	-3.88	-2.90	-2.96	-3.22	-3.14
3.45	-4.06	-6.77	-4.11	-5.68	-5.25
3.70	-2.10	-0.99	-1.33	-1.49	-1.40
3.95	-3.08	-4.17	-1.88	-1.90	-2.02
4.18	-3.25	-4.23	-3.89	-3.33	-3.47
4.45	-1.73	-0.78	-1.61	-1.74	-1.55
4.68	-1.97	-1.24	-1.65	-2.01	-1.83
4.95	-4.09	-4.23	-4.27	-4.69	-4.55
5.19	-6.11	-8.29	-7.42	-8.75	-8.26
5.44	-1.70	-0.95	-1.30	-1.61	-1.46
5.69	-3.78	-3.30	-3.95	-4.32	-4.07
5.95	-6.11	-4.71	-5.55	-5.76	-5.53
6.19	-1.83	-1.04	-2.30	-2.39	-2.08
6.44	-3.09	-0.82	-2.09	-2.15	-1.86
6.69	-0.94	0.37	-0.65	-0.86	-0.58
6.94	-4.24	-3.09	-3.80	-4.09	-3.87
7.19	-4.13	-2.08	-3.23	-3.53	-3.20
7.46	-1.53	0.10	-0.45	-0.80	-0.59
7.69	-4.55	-3.82	-4.21	-4.45	-4.32
7.96	-1.97	-2.66	-2.96	-3.48	-3.22
8.19	-4.93	-2.12	-2.96	-3.08	-2.90
8.46	-2.06	-0.92	-1.67	-1.90	-1.69
8.74	-4.50	-2.47	-3.36	-3.51	-3.29
8.98	-3.56	-2.08	-2.69	-3.08	-2.84
9.20	-2.15	-3.67	-2.69	-3.69	-3.43
9.48	-3.83	-2.00	-2.81	-3.01	-2.80
9.72	-2.63	-1.35	-1.83	-2.15	-1.97
9.97	-4.61	-3.99	-3.89	-4.20	-4.12
10.30	-4.45	-5.71	-4.49	-4.79	-4.80
10.49	-4.50	-4.71	-4.42	-4.99	-4.84
10.76	-1.56	-0.29	-0.73	-1.15	-0.94
11.01	-3.56	-2.59	-2.75	-3.06	-2.95
11.22	-5.55	-8.11	-6.49	-6.99	-6.94
11.49	-4.55	-3.65	-3.67	-3.87	-3.81
11.74	-2.06	-1.01	-1.50	-1.84	-1.65
12.01	-4.20	-3.16	-3.04	-3.35	-3.28
12.24	-5.37	-2.66	-2.81	-2.96	-2.91
12.48	-6.91	-3.63	-3.12	-3.31	-3.32
12.74	-5.76	-3.38	-2.88	-3.20	-3.17
12.98	-3.56	-3.26	-2.69	-3.06	-3.02
13.24	-5.10	-5.04	-6.76	-4.81	-4.77
13.48	-7.16	-5.68	-5.18	-5.54	-5.50
13.73	-1.39	-2.41	-2.02	-2.56	-2.42
13.99	-4.24	-3.89	-3.30	-3.66	-3.62
14.25	-5.83	-5.20	-3.85	-4.26	-4.26
14.50	-7.60	-4.66	-4.04	-4.38	-4.36
14.75	-3.04	-4.02	-3.63	-4.20	-4.05



MW-103

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.975152061
R Square	0.950921542
Adjusted R Square	0.941105851
Standard Error	0.353990358
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	12.13966354	12.13966354	96.8776922	0.000184448
Residual	5	0.626545868	0.125309174		
Total	6	12.76620941			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.44017889	0.272165962	-1.61731791	0.16673312	-1.13980262	0.25944485	-1.13980262	0.25944485
X Variable 1	-2.02043364	0.205273411	-9.8426466	0.00018445	-2.548104882	-1.4927624	-2.54810488	-1.4927624

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.952889008
R Square	0.907997461
Adjusted R Square	0.889596953
Standard Error	0.738085547
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	26.88241169	26.88241169	49.3463262	0.000902007
Residual	5	2.723851375	0.544770275		
Total	6	29.60626307			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.156116386	0.567478064	0.275105588	0.79424124	-1.302630033	1.614862806	-1.30263003	1.614862806
X Variable 1	-3.00659811	0.428004138	-7.02469403	0.00090201	-4.106815975	-1.90638025	-4.10681597	-1.90638025

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.981775956
R Square	0.963884029
Adjusted R Square	0.956660834
Standard Error	0.374586328
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	18.72403022	18.72403022	133.442906	8.52732E-05
Residual	5	0.701574585	0.140314917		
Total	6	19.42560481			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.0614336	0.288001201	-0.21331022	0.83950987	-0.801763045	0.678895847	-0.80176304	0.678895847
X Variable 1	-2.50923267	0.217216688	-11.551749	8.5273E-05	-3.067605029	-1.95086031	-3.06760503	-1.95086031

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.986718147
R Square	0.973612701
Adjusted R Square	0.968335241
Standard Error	0.268168367
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	13.26711185	13.26711185	184.4851	3.87707E-05
Residual	5	0.359571364	0.071914273		
Total	6	13.62668321			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.1755684	0.206181609	-0.85152308	0.43335794	-0.70557423	0.354437434	-0.70557423	0.354437434
X Variable 1	-2.11217288	0.155506595	-13.5825292	3.8771E-05	-2.511914653	-1.7124311	-2.51191465	-1.7124311

MW-111 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

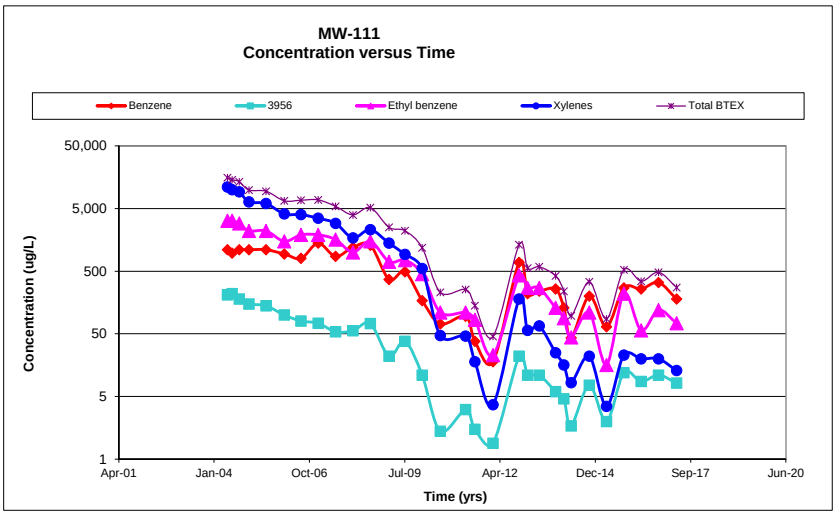
t = Time in years

r = Apparent first order rate constant (per year)

MW-111	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.19	0.31	0.35	0.61	0.36
R^2	0.444	0.608	0.778	0.860	0.740
Half-life (yrs)	3.6	2.2	2.0	1.1	1.9

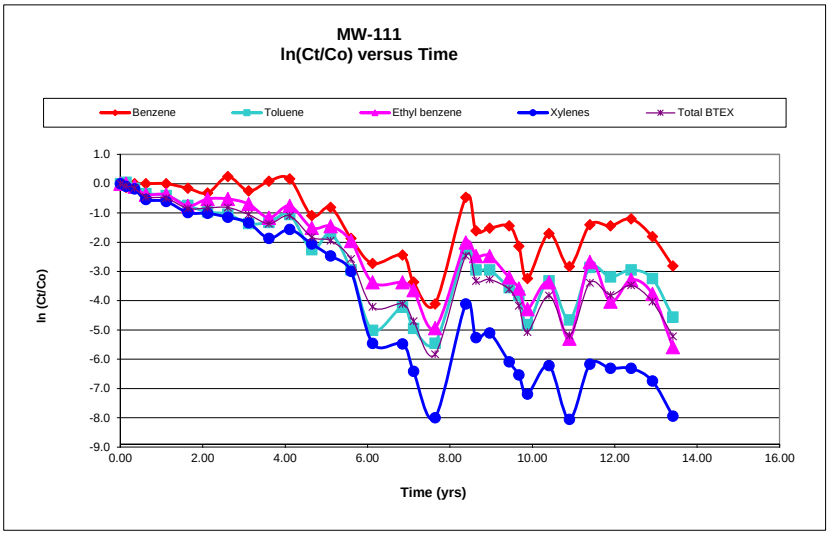
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jun-04	1,100	210.0	3,200	11,000	15510
Jul-04	970	220	3,200	10,000	14390
Oct-04	1,100	180	2,900	9,200	13380
Jan-05	1,100	150	2,200	6,400	9850
Jul-05	1,100	140	2,200	6,000	9440
Jan-06	940	100	1,500	4,100	6640
Jul-06	800	80	1,900	4,000	6780
Jan-07	1400	74	1900	3500	6874
Jul-07	860	54	1600	2900	5414
Jan-08	1200	56	1000	1700	3956
Jul-08	1,300	73	1500	2,300	5173
Jan-09	370	22	710	1400	2502
Jul-09	490	38	750	930	2208
Jan-10	170	11	450	550	1181
Jul-10	72	1.4	110	47	230.4
Apr-11	96	3.1	110	46	255.1
Jul-11	38	1.5	84	18	141.5
Jan-12	18	0.9	23	3.7	45.6
Oct-12	690	22	430	180	1322
Jan-13	220	11	270	57	558
May-13	240	11	270	67	588
Nov-13	260	6	130	25	421
Jan-14	130	4.6	89	16	239.6
Apr-14	43	1.7	44	8.3	97
Oct-14	200	7.6	110	22	339.6
Apr-15	65	2	16	3.5	86.5
Oct-15	270	12	220	23	525
Apr-16	260	8.7	57	20	345.7
Oct-16	330	11	120	20	481
Apr-17	180	8.2	74	13	275.2
Oct-17	66	2.2	12	3.9	84.1



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.13	-0.13	0.05	0.00	-0.10	-0.07
0.34	0.00	-0.15	-0.10	-0.18	-0.15
0.62	0.00	-0.34	-0.37	-0.54	-0.45
1.11	0.00	-0.41	-0.37	-0.61	-0.50
1.64	-0.16	-0.74	-0.76	-0.99	-0.85
2.12	-0.32	-0.97	-0.52	-1.01	-0.83
2.61	0.24	-1.04	-0.52	-1.15	-0.81
3.11	-0.25	-1.36	-0.69	-1.33	-1.05
3.61	0.09	-1.32	-1.16	-1.87	-1.37
4.11	0.17	-1.06	-0.76	-1.56	-1.10
4.64	-1.09	-2.26	-1.51	-2.06	-1.82
5.10	-0.81	-1.71	-1.45	-2.47	-1.95
5.60	-1.87	-2.95	-1.96	-3.00	-2.58
6.12	-2.73	-5.01	-3.37	-5.46	-4.21
6.85	-2.44	-4.22	-3.37	-5.48	-4.11
7.12	-3.37	-4.94	-3.64	-6.42	-4.70
7.64	-4.11	-5.45	-4.94	-8.00	-5.83
8.38	-0.47	-2.26	-2.01	-4.11	-2.46
8.63	-1.61	-2.95	-2.47	-5.26	-3.32
8.96	-1.52	-2.95	-2.47	-5.10	-3.27
9.43	-1.44	-3.56	-3.20	-6.09	-3.61
9.67	-2.14	-3.82	-3.58	-6.53	-4.17
9.88	-3.24	-4.82	-4.29	-7.19	-5.07
10.40	-1.70	-3.32	-3.37	-6.21	-3.82
10.90	-2.83	-4.65	-5.30	-8.05	-5.19
11.39	-1.40	-2.86	-2.68	-6.17	-3.39
11.89	-1.44	-3.18	-4.03	-6.31	-3.80
12.39	-1.20	-2.95	-3.28	-6.31	-3.47
12.91	-1.81	-3.24	-3.77	-6.74	-4.03
13.41	-2.81	-4.56	-5.59	-7.94	-5.22



MW-111

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

MW-113 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

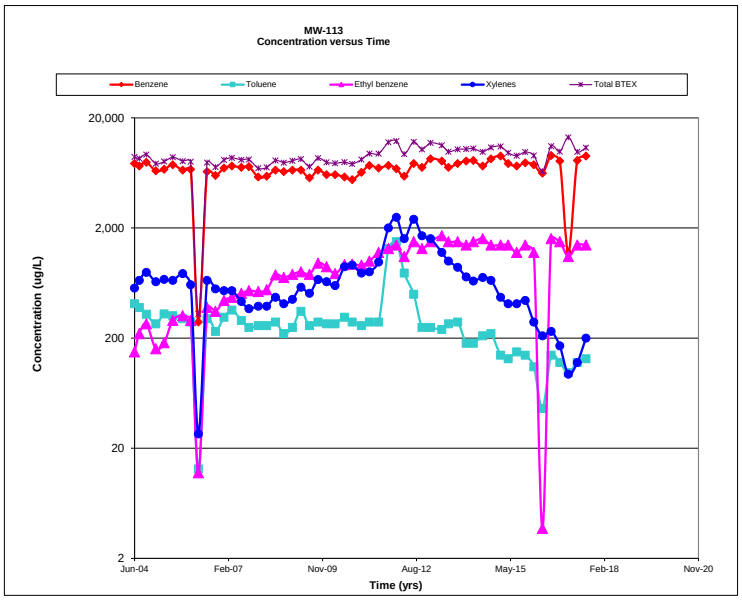
t = Time in years

k = Apparent first order rate constant (per year)

MW-113	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	-0.02	0.06	-0.13	0.04	-0.04
R^2	0.024	0.113	0.224	0.040	0.119
Half-life (yrs)	-35.2	11.9	-5.2	17.4	-16.9

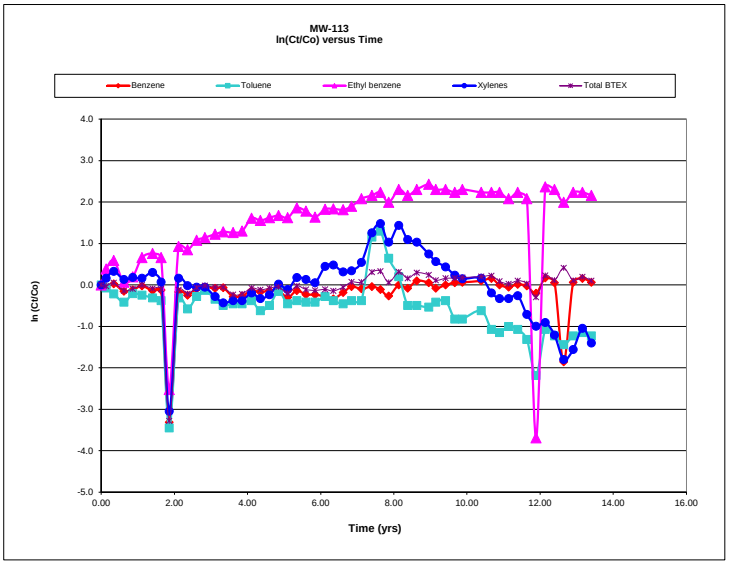
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jun-04	7,700	410.0	150	570	8830
Jul-04	7,300	380	220	670	8570
Oct-04	7,900	330	270	790	9290
Jan-05	6,600	270	160	650	7680
Apr-05	6,830	332	182	683	8027
Jul-05	7,500	320	290	670	8780
Oct-05	6,700	300	320	770	8090
Jan-06	6800	280	290	610	7980
Apr-06	280	13	12	27	332
Jul-06	6,500	300.0	380.0	670.0	7850
Oct-06	6,000	230	350	560.0	7140
Jan-07	7000	310	440	540	8290
Apr-07	7300	360	470	540	8670
Jul-07	7100	290	510	430	8330
Oct-07	7200	250	540	370	8360
Jan-08	5800	260	530	390	6980
Apr-08	5900	260	550	390	7100
Jul-08	6700	280	750	470	8200
Oct-08	6500	220	710	410	7840
Jan-09	6700	250	760	450	8160
Apr-09	6700	350	800	580	8430
Jul-09	5700	260	760	510	7230
Oct-09	6700	280	960	680	8620
Jan-10	6100	270	890	650	7910
Apr-10	6100	270	770	600	7740
Jul-10	5800	310	930	890	7930
Oct-10	5500	280	940	920	7640
Jan-11	6400	260	920	780	8360
Apr-11	7400	280	1000	800	9480
Jul-11	7000	280	1200	980	9460
Oct-11	7400	1300	1300	2000	12000
Jan-12	6900	1500	1400	2500	12300
Apr-12	5900	780	1100	1600	9380
Jul-12	7700	500	1500	2400	12100
Oct-12	7100	250	1300	1700	10350
Jan-13	8500	250	1500	1600	11850
May-13	8100	240	1700	1200	11240
Jul-13	7100	270	1500	1000	9870
Oct-13	7700	280	1500	880	10360
Jan-14	8100	180	1400	720	10400
Apr-14	8200	180	1500	660	10540
Jul-14	7300	210	1600	710	9820
Oct-14	8500	220	1400	670	10790
Jan-15	9000	140	1400	470	11010
Apr-15	7700	130	1400	410	9640
Jul-15	7300	150	1200	410	9060
Oct-15	7800	140	1400	440	9780
Jan-16	7500	110	1200	280	9090
Apr-16	6300	46	3.75	210	6556
Jul-16	9100	140	1600	230	11070
Oct-16	8100	120	1500	170	9890
Jan-17	1200	97	1100	94	13291
Apr-17	8200	120	1400	120	9840
Jul-17	9000	130	1400	200	10730
Oct-17	8200	120	1300	140	9760



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.14	-0.05	-0.08	0.38	0.16	-0.03
0.34	0.03	-0.22	0.59	0.33	0.05
0.62	-0.15	-0.42	0.06	0.13	-0.14
0.86	-0.12	-0.21	0.19	0.18	-0.10
1.12	-0.03	-0.25	0.66	0.16	-0.01
1.40	-0.14	-0.31	0.76	0.30	-0.09
1.64	-0.12	-0.38	0.66	0.07	-0.10
1.86	-3.31	-3.45	-2.53	-3.05	-3.28
2.12	-0.17	-0.31	0.93	0.16	-0.12
2.36	-0.25	-0.58	0.85	-0.02	-0.21
2.61	-0.10	-0.28	1.08	-0.05	-0.06
2.84	-0.05	-0.13	1.14	-0.05	-0.02
3.11	-0.08	-0.35	1.22	-0.28	-0.06
3.33	-0.07	-0.49	1.28	-0.43	-0.05
3.61	-0.28	-0.46	1.26	-0.38	-0.24
3.85	-0.27	-0.46	1.30	-0.38	-0.22
4.11	-0.14	-0.38	1.61	-0.19	-0.07
4.35	-0.17	-0.62	1.55	-0.33	-0.12
4.60	-0.14	-0.49	1.62	-0.24	-0.08
4.85	-0.14	-0.16	1.67	0.02	-0.05
5.10	-0.30	-0.46	1.62	-0.11	-0.20
5.35	-0.14	-0.38	1.86	0.18	-0.02
5.60	-0.23	-0.42	1.78	0.13	-0.11
5.85	-0.23	-0.42	1.64	0.05	-0.13
6.12	-0.28	-0.28	1.82	0.45	-0.11
6.35	-0.34	-0.38	1.84	0.48	-0.14
6.61	-0.18	-0.46	1.81	0.31	-0.05
6.84	-0.04	-0.38	1.90	0.34	0.07
7.12	-0.10	-0.38	2.08	0.54	0.07
7.40	-0.04	1.15	2.16	1.26	0.31
7.63	-0.11	1.30	2.23	1.48	0.33
7.86	-0.27	0.64	1.99	1.03	0.06
8.14	0.00	0.20	2.30	1.44	0.32
8.38	-0.08	-0.49	2.16	1.09	0.16
8.63	0.10	-0.49	2.30	1.03	0.29
8.96	0.05	-0.54	2.43	0.74	0.24
9.15	-0.08	-0.42	2.30	0.56	0.11
9.42	0.00	-0.38	2.30	0.43	0.16
9.67	0.05	-0.82	2.23	0.23	0.16
9.87	0.06	-0.82	2.30	0.15	0.18
10.39	0.10	-0.62	2.23	0.16	0.20
10.67	0.16	-1.07	2.23	-0.19	0.22
10.89	0.00	-1.15	2.23	-0.33	0.09
11.14	-0.05	-1.01	2.08	-0.33	0.03
11.39	0.01	-1.07	2.23	-0.26	0.10
11.64	-0.03	-1.32	2.08	-0.71	0.03
11.89	-0.20	-2.19	-3.69	-1.00	-0.30
12.14	0.17	-1.07	2.37	-0.91	0.23
12.39	0.05	-1.23	2.30	-1.21	0.11
12.64	-1.86	-1.44	1.99	-1.80	0.41
12.90	0.06	-1.23	2.23	-1.56	0.11
13.16	0.16	-1.15	2.23	-1.05	0.19
13.40	0.06	-1.23	2.16	-1.40	0.10



MW-113

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.806570325
R Square	0.650555688
Adjusted R Square	0.475833533
Standard Error	0.60762752
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.37471088	1.37471088	3.72337261	0.193429675
Residual	2	0.738422406	0.369211203		
Total	3	2.113133286			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.57393578	0.449825097	-1.27590876	0.33013177	-2.509378311	1.361506745	-2.50937831	1.361506745
X Variable 1	-2.55337704	1.323264617	-1.92960426	0.19342968	-8.246929122	3.140175035	-8.24692912	3.140175035

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.82272768
R Square	0.676880835
Adjusted R Square	0.515321253
Standard Error	0.805318914
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.717160514	2.717160514	4.18966691	0.17727232
Residual	2	1.297077106	0.648538553		
Total	3	4.014237621			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.75312442	0.596175529	-1.26325952	0.33381733	-3.31826247	1.812013639	-3.31826247	1.812013639
X Variable 1	-3.58977238	1.753788281	-2.04686758	0.17727232	-11.13571957	3.956174806	-11.1357196	3.956174806

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.740084365
R Square	0.547724868
Adjusted R Square	0.321587302
Standard Error	0.608804982
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.897730832	0.897730832	2.42208704	0.259915633
Residual	2	0.741287012	0.370643506		
Total	3	1.639017844			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.34651417	0.450696769	-0.76884103	0.52236837	-2.285707198	1.592678867	-2.2857072	1.592678867
X Variable 1	-2.06339482	1.325828842	-1.55630557	0.25991563	-7.767979872	3.64119024	-7.76797987	3.64119024

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.934773115
R Square	0.873800777
Adjusted R Square	0.810701166
Standard Error	0.388374022
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.088748199	2.088748199	13.8479582	0.065226885
Residual	2	0.301668762	0.150834381		
Total	3	2.390416962			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.31329234	0.287512294	-1.08966589	0.38965274	-1.550358757	0.923774078	-1.55035876	0.923774078
X Variable 1	-3.14740267	0.845783946	-3.72128448	0.06522688	-6.786519808	0.491714469	-6.78651981	0.491714469

MW-116 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

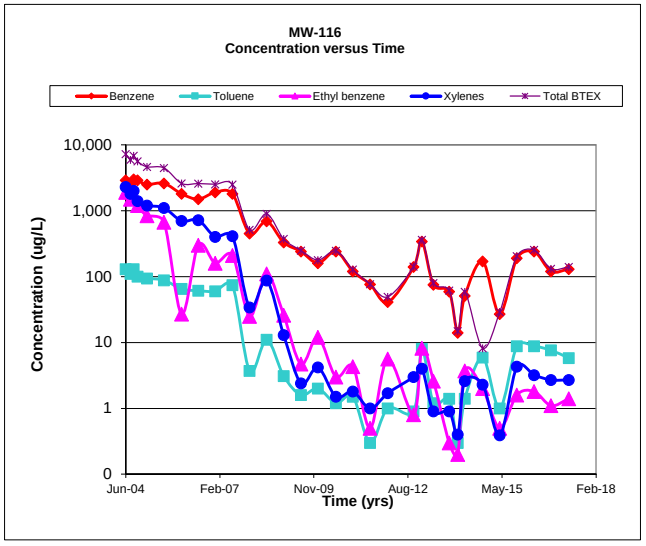
t = Time in years

k = Apparent first order rate constant (per year)

MW-116	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.30	0.29	0.59	0.60	0.37
R^2	0.670	0.419	0.793	0.734	0.692
Half-life (yrs)	2.3	2.4	1.2	1.2	1.9

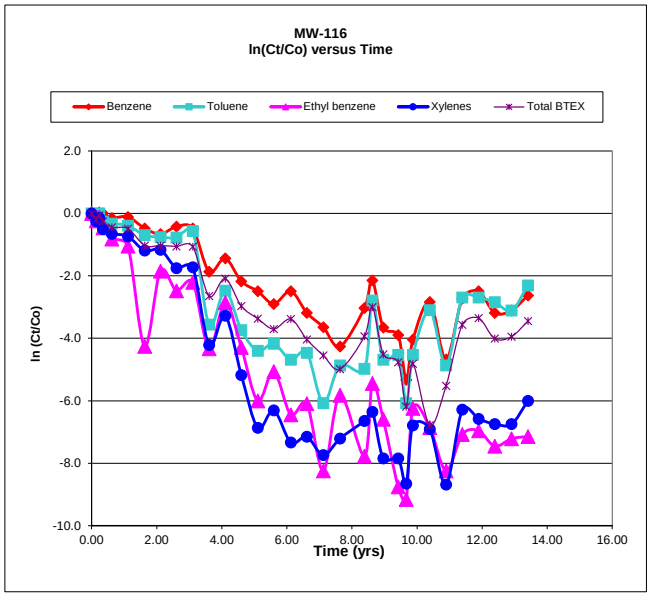
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jun-04	2,900	130.0	1,900	2,300	7230
Jul-04	2,500	110	1,500	1,800	5910
Aug-04	3,000	130	1,700	2,000	6830
Oct-04	2,900	100	1,200	1,400	5600
Jan-05	2,500	94	840	1,200	4634
Jul-05	2,600	88	670	1,100	4458
Jan-06	1,800	65	27	700	2592
Jul-06	1500	61	300	720	2581
Jan-07	1900	60	160	400	2520
Jul-07	1800	74	210	410	2494
Jan-08	450	3.7	25	34	512.7
Jul-08	690	11	110	87	898
Jan-09	330	3.1	26	13	372.1
Jul-09	240	1.6	4.7	2.4	248.7
Jan-10	160	2	12	4.2	178.2
Jul-10	240	1.2	3	1.5	245.7
Jan-11	120	1.5	4.3	1.8	127.6
Jul-11	76	0.3	0.5	1	76.8
Jan-12	41	1	5.6	1.7	49.3
Oct-12	140	0.9	0.8	3	141.7
Jan-13	340	8	8.2	4	360.2
May-13	75	1.2	2.6	0.9	79.7
Oct-13	59	1.4	0.3	0.9	61.6
Jan-14	14	0.3	0.2	0.4	14.9
Apr-14	51	1.4	3.7	2.6	58.7
Oct-14	170	5.9	2	2.3	8.2
Apr-15	27	1	0.5	0.39	28.89
Oct-15	190	8.8	1.6	4.3	204.7
Apr-16	240	8.8	1.8	3.2	253.8
Oct-16	120	7.6	1.1	2.7	131.4
Apr-17	130	5.8	1.4	2.7	139.9
Oct-17	210	13	1.5	5.7	230.2



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.14	-0.15	-0.17	-0.24	-0.25	-0.20
0.23	0.03	0.00	-0.11	-0.14	-0.06
0.35	0.00	-0.26	-0.46	-0.50	-0.26
0.62	-0.15	-0.32	-0.82	-0.65	-0.44
1.12	-0.11	-0.39	-1.04	-0.74	-0.48
1.63	-0.48	-0.69	-4.25	-1.19	-1.03
2.11	-0.66	-0.76	-1.85	-1.16	-1.03
2.61	-0.42	-0.77	-2.47	-1.75	-1.05
3.11	-0.48	-0.56	-2.20	-1.72	-1.06
3.61	-1.86	-3.56	-4.33	-4.21	-2.65
4.10	-1.44	-2.47	-2.85	-3.27	-2.09
4.60	-2.17	-3.74	-4.29	-5.18	-2.97
5.10	-2.49	-4.40	-6.00	-6.87	-3.37
5.60	-2.90	-4.17	-5.06	-6.31	-3.70
6.12	-2.49	-4.69	-6.45	-7.34	-3.38
6.61	-3.18	-4.46	-6.09	-7.15	-4.04
7.12	-3.64	-6.07	-8.24	-7.74	-4.54
7.63	-4.26	-4.87	-5.83	-7.21	-4.99
8.38	-3.03	-4.97	-7.77	-6.64	-3.93
8.63	-2.14	-2.79	-5.45	-6.35	-3.00
8.96	-3.65	-4.69	-6.59	-7.85	-4.51
9.42	-3.89	-4.53	-8.75	-7.85	-4.77
9.67	-5.33	-6.07	-9.16	-8.66	-6.18
9.87	-4.04	-4.53	-6.24	-6.79	-4.81
10.39	-2.84	-3.09	-6.86	-6.91	-6.78
10.89	-4.68	-4.87	-8.24	-8.68	-5.52
11.39	-2.73	-2.69	-7.08	-6.28	-3.56
11.89	-2.49	-2.69	-6.96	-6.58	-3.35
12.39	-3.18	-2.84	-7.45	-6.75	-4.01
12.90	-3.10	-3.11	-7.21	-6.75	-3.95
13.41	-2.63	-2.30	-7.14	-6.00	-3.45



MW-116

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.291371914
R Square	0.084897592
Adjusted R Square	-0.37265361
Standard Error	0.095419601
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.001689394	0.001689394	0.18554774	0.708628086
Residual	2	0.0182098	0.0091049		
Total	3	0.019899194			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.05285478	0.073750052	-0.7166745	0.54796513	-0.370175863	0.264466301	-0.37017586	0.264466301
X Variable 1	0.166050447	0.385489197	0.430752529	0.70862809	-1.492576853	1.824677746	-1.49257685	1.824677746

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.696131171
R Square	0.484598607
Adjusted R Square	0.22689791
Standard Error	0.114238742
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.024541064	0.024541064	1.88047069	0.303868829
Residual	2	0.02610098	0.01305049		
Total	3	0.050642045			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.01502348	0.088295414	-0.17015013	0.88054715	-0.394928244	0.364881292	-0.39492824	0.364881292
X Variable 1	-0.63287992	0.461517347	-1.37130255	0.30386883	-2.618630172	1.35287034	-2.61863017	1.35287034

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.874032548
R Square	0.763932895
Adjusted R Square	0.645899342
Standard Error	0.117289074
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.089035838	0.089035838	6.47216726	0.125967452
Residual	2	0.027513454	0.013756727		
Total	3	0.116549292			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.02591991	0.090653023	-0.28592444	0.80183055	-0.415968665	0.364128836	-0.41596866	0.364128836
X Variable 1	-1.20547176	0.473840498	-2.54404545	0.12596745	-3.244244295	0.833300767	-3.24424429	0.833300767

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.899521461
R Square	0.809138859
Adjusted R Square	0.713708288
Standard Error	0.112187233
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.106714249	0.106714249	8.47882238	0.100478539
Residual	2	0.025171951	0.012585975		
Total	3	0.131886199			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.02779404	0.086709797	-0.32054099	0.77895021	-0.40087645	0.345288361	-0.40087645	0.345288361
X Variable 1	-1.31973223	0.453229379	-2.91184175	0.10047854	-3.269822212	0.630357754	-3.26982221	0.630357754

MW-117 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

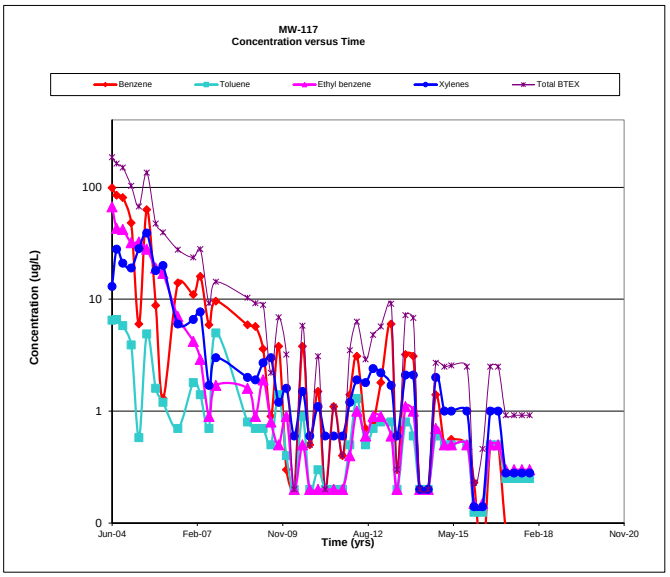
t = Time in years

k = Apparent first order rate constant (per year)

MW-117	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.41	0.19	0.35	0.31	0.36
R^2	0.690	0.517	0.647	0.713	0.583
Half-life (yrs)	1.7	3.7	2.0	2.3	1.9

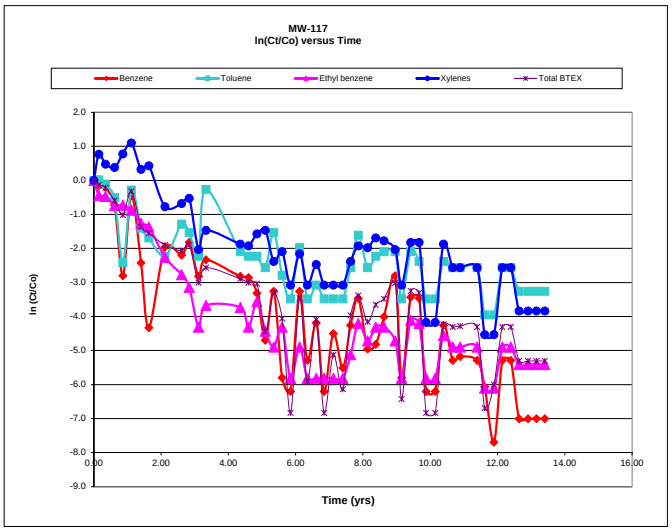
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jun-04	99	6.5	67	13	185.5
Jul-04	85	6.6	43	28	162.6
Oct-04	81	5.8	42	21	149.8
Jan-05	48	3.9	32	19	102.9
Apr-05	6.0	0.6	32	28	67.28
Jul-05	63	4.9	28	39	134.9
Oct-05	8.8	1.6	19	18	47.4
Jan-06	1.3	1.2	17	20	39.5
Jul-06	14	0.7	7	6	27.7
Jan-07	11	1.8	4.2	6.6	23.6
Apr-07	16	1.4	2.9	7.7	28
Jul-07	5.9	0.7	0.9	1.7	9.2
Oct-07	9.6	5.0	1.7	3.0	14.3
Oct-08	5.9	0.8	1.6	2.0	10.3
Jan-09	5.7	0.7	0.9	1.9	9.2
Apr-09	3.6	0.7	1.9	2.7	8.9
Jul-09	0.9	0.5	0.8	3.0	2.2
Oct-09	3.8	1.4	0.5	1.2	6.9
Jan-10	0.3	0.4	0.9	1.6	3.2
Apr-10	0.2	0.2	0.2	0.6	0.2
Jul-10	3.8	0.9	0.5	1.5	5.8
Oct-10	0.5	0.2	0.2	0.6	0.5
Jan-11	1.5	0.3	0.2	1.1	3.1
Apr-11	0.2	0.2	0.2	0.6	0.2
Jul-11	1.1	0.2	0.2	0.6	1.1
Oct-11	0.4	0.2	0.2	0.6	0.4
Jan-12	1.4	0.5	0.4	1.2	3.5
Apr-12	3.1	1.3	1.0	1.9	6.3
Jul-12	0.7	0.5	0.6	1.8	2.9
Oct-12	1	0.7	0.9	2.4	4.8
Jan-13	2	0.8	0.9	2.2	5.7
May-13	6	0.8	0.6	1.7	9.1
Jul-13	0	0.2	0.2	0.6	0.3
Oct-13	3	0.8	1.1	2.1	7.2
Jan-14	3.1	0.6	1	2.1	6.8
Apr-14	0.2	0.2	0.2	0.2	0.2
Jul-14	0.2	0.2	0.2	0.2	0.2
Oct-14	1.4	0.6	0.7	2	2.7
Jan-15	0.5	0.5	0.5	1	2.5
Apr-15	0.56	0.5	0.5	1	2.56
Oct-15	0.5	0.5	0.5	1	2.5
Jan-16	0.23	0.125	0.15	0.14	0.23
Apr-16	0.045	0.125	0.15	0.14	0.46
Jul-16	0.5	0.5	0.5	1	2.5
Oct-16	0.5	0.5	0.5	1	2.5
Jan-17	0.09	0.25	0.3	0.28	0.92
Apr-17	0.09	0.25	0.3	0.28	0.92
Jul-17	0.09	0.25	0.3	0.28	0.92
Oct-17	0.09	0.25	0.3	0.28	0.92



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.15	-0.15	0.02	-0.44	0.77	-0.13
0.35	-0.20	-0.11	-0.47	0.48	-0.21
0.61	-0.72	-0.51	-0.74	0.38	-0.59
0.86	-2.80	-2.42	-0.73	0.78	-1.01
1.12	-0.45	-0.28	-0.87	1.10	-0.32
1.40	-2.42	-1.40	-1.26	0.33	-1.36
1.64	-4.33	-1.69	-1.37	0.43	-1.55
2.12	-1.96	-2.23	-2.26	-0.77	-1.90
2.61	-2.20	-1.28	-2.77	-0.68	-2.06
2.84	-1.82	-1.54	-3.14	-0.52	-1.89
3.11	-2.82	-2.23	-4.31	-2.03	-3.00
3.33	-2.33	-0.26	-3.67	-1.47	-2.56
4.35	-2.82	-2.09	-3.73	-1.87	-2.89
4.60	-2.85	-2.23	-4.31	-1.92	-3.00
4.85	-3.31	-2.23	-3.56	-1.57	-3.04
5.10	-4.70	-2.56	-4.43	-1.47	-4.43
5.35	-3.26	-1.54	-4.90	-2.38	-3.29
5.60	-5.80	-2.79	-4.31	-2.09	-4.06
5.85	-6.20	-3.48	-5.81	-3.08	-6.83
6.12	-3.26	-1.98	-4.90	-2.16	-3.47
6.35	-5.29	-3.48	-5.81	-3.08	-5.92
6.61	-4.19	-3.08	-5.81	-2.47	-4.09
6.84	-6.20	-3.48	-5.81	-3.08	-6.83
7.12	-4.50	-3.48	-5.81	-3.08	-5.13
7.40	-5.51	-3.48	-5.81	-3.08	-6.14
7.63	-4.26	-2.56	-5.12	-2.38	-3.97
7.86	-3.46	-1.61	-4.20	-1.92	-3.38
8.14	-4.95	-2.56	-4.72	-1.98	-4.16
8.38	-4.82	-2.23	-4.31	-1.69	-3.65
8.63	-4.01	-2.09	-4.31	-1.78	-3.48
8.96	-2.80	-2.09	-4.72	-2.03	-3.01
9.15	-5.80	-3.48	-5.81	-3.08	-6.43
9.42	-3.43	-2.09	-4.11	-1.82	-3.25
9.67	-3.46	-2.38	-4.20	-1.82	-3.31
9.88	-6.20	-3.48	-5.81	-4.17	-6.83
10.15	-6.20	-3.48	-5.81	-4.17	-6.83
10.39	-4.26	-2.38	-4.56	-1.87	-4.23
10.67	-5.29	-2.56	-4.90	-2.56	-4.31
10.89	-5.17	-2.56	-4.90	-2.56	-4.28
11.39	-5.29	-2.56	-4.90	-2.56	-4.31
11.62	-6.06	-3.95	-6.10	-4.53	-6.69
11.89	-7.70	-3.95	-6.10	-4.53	-6.00
12.14	-5.29	-2.56	-4.90	-2.56	-4.31
12.39	-5.29	-2.56	-4.90	-2.56	-4.31
12.64	-7.00	-3.26	-5.41	-3.84	-5.31
12.91	-7.00	-3.26	-5.41	-3.84	-5.31
13.16	-7.00	-3.26	-5.41	-3.84	-5.31
13.41	-7.00	-3.26	-5.41	-3.84	-5.31



MW-117

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.934344939
R Square	0.873000466
Adjusted R Square	0.809500698
Standard Error	0.137459128
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.259770309	0.259770309	13.7480892	0.065655061
Residual	2	0.037790024	0.018895012		
Total	3	0.297560333			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.008983595	0.10176064	0.088281628	0.93769674	-0.428857407	0.446824597	-0.42885741	0.446824597
X Variable 1	-1.10995155	0.299352472	-3.70784159	0.06565506	-2.397962174	0.178059083	-2.39796217	0.178059083

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.938743341
R Square	0.881239061
Adjusted R Square	0.821858591
Standard Error	0.103753759
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.159756226	0.159756226	14.8405539	0.061256659
Residual	2	0.021529685	0.010764843		
Total	3	0.181285911			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.065830247	0.076808642	0.857068236	0.48171195	-0.264650896	0.396311391	-0.2646509	0.396311391
X Variable 1	-0.87043864	0.225950395	-3.85234395	0.06125666	-1.842625398	0.101748124	-1.8426254	0.101748124

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.872726469
R Square	0.761651489
Adjusted R Square	0.642477234
Standard Error	0.182887558
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.213767743	0.213767743	6.39107404	0.127273531
Residual	2	0.066895718	0.033447859		
Total	3	0.280663461			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.15995688	0.135391191	-1.18144229	0.3588774	-0.742498562	0.422584804	-0.74249856	0.422584804
X Variable 1	-1.00688611	0.398284519	-2.52805736	0.12727353	-2.720567279	0.706795055	-2.72056728	0.706795055

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.151356705
R Square	0.022908852
Adjusted R Square	-0.46563672
Standard Error	0.383764078
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.006906005	0.006906005	0.04689194	0.848643295
Residual	2	0.294549736	0.147274868		
Total	3	0.301455741			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.361211328	0.284099564	1.271425138	0.33143252	-0.861171289	1.583593944	-0.86117129	1.583593944
X Variable 1	0.180976718	0.835744612	0.21654548	0.8486433	-3.414944621	3.776898057	-3.41494462	3.776898057

MW-118 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

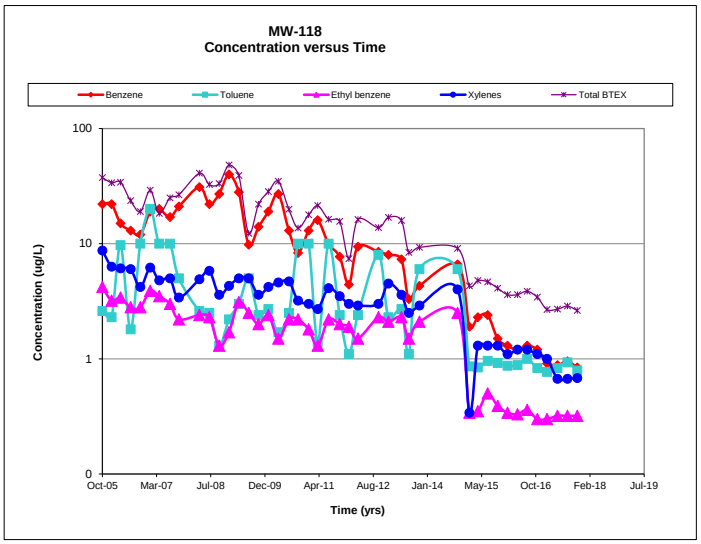
t = Time in years

r = Apparent first order rate constant (per year)

MW-118	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.29	0.16	0.21	0.18	0.22
R^2	0.826	0.408	0.750	0.756	0.832
Half-life (yrs)	2.4	4.3	3.3	3.9	3.1

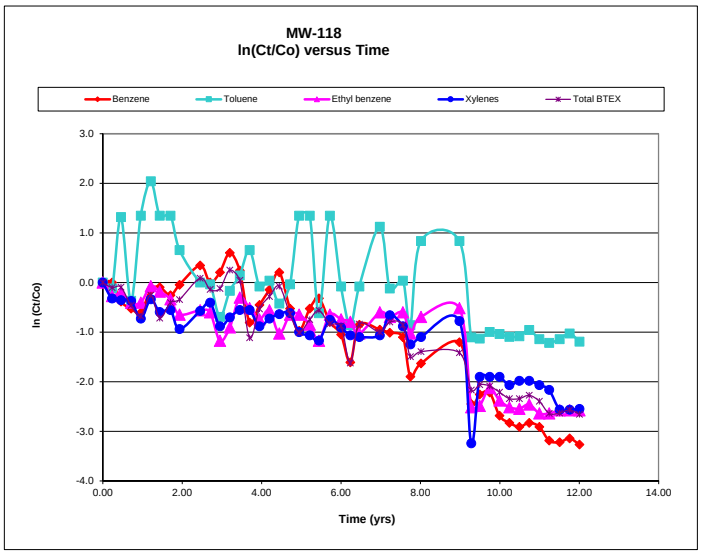
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Oct-05	22	2.6	4	9	37.5
Jan-06	22	2	3	6	33.8
Apr-06	15	10	3	6	34.2
Jul-06	13	2	3	6	23.6
Oct-06	12	10	3	4	19
Jan-07	19	20	4	6	29.1
Apr-07	20	10	4	5	18.3
Jul-07	17	10	3	5	25
Oct-07	21	5	2	3	26.6
Apr-08	31	2.6	2.4	4.9	40.9
Jul-08	22	3	2.3	5.8	32.6
Oct-08	27	1.3	1.3	3.6	33.2
Jan-09	40	2.2	1.7	4.3	48.2
Apr-09	28	3	3.1	5	39.1
Jul-09	9.8	5	2.5	5	12.3
Oct-09	14	2.4	2	3.6	22
Jan-10	19	2.7	2.4	4.2	28.3
Apr-10	27	1.7	1.5	4.6	34.8
Jul-10	13	2.5	2.2	4.7	19.9
Oct-10	8.3	10	2.2	3.2	13.7
Jan-11	13	10	1.8	3	17.8
Apr-11	16	1.4	1.3	2.7	21.4
Jul-11	10	10	2.2	4.1	16.3
Oct-11	7.7	2.4	2	3.5	15.6
Jan-12	4.4	1.1	1.9	3	7.4
Apr-12	9.4	2.4	1.5	2.9	16.2
Oct-12	8.5	8	2.3	3	13.8
Jan-13	8	2.3	2.1	4.5	16.9
May-13	7.3	2.7	2.3	3.6	15.9
Jul-13	3.3	1.1	1.5	2.5	8.4
Oct-13	4.3	6	2.1	2.9	9.3
Oct-14	6.6	6.00	2.5	4	9.1
Feb-15	1.9	0.86	0.34	0.34	4.3
Apr-15	2.3	0.84	0.35	1.3	4.79
Jul-15	2.4	0.96	0.5	1.3	4.66
Oct-15	1.5	0.92	0.39	1.3	4.11
Jan-16	1.3	0.87	0.34	1.1	3.61
Apr-16	1.2	0.88	0.33	1.2	3.61
Jul-16	1.3	1.00	0.36	1.2	3.86
Oct-16	1.2	0.83	0.3	1.1	3.43
Jan-17	0.91	0.77	0.3	1	2.68
Apr-17	0.88	0.83	0.32	0.67	2.7
Jul-17	0.95	0.93	0.32	0.67	2.87
Oct-17	0.84	0.79	0.32	0.68	2.63



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.23	0.00	-0.12	-0.27	-0.32	-0.10
0.46	-0.38	1.32	-0.21	-0.36	-0.09
0.71	-0.53	-0.37	-0.41	-0.37	-0.46
0.96	-0.61	1.35	-0.41	-0.73	-0.68
1.21	-0.15	2.04	-0.07	-0.34	-0.25
1.44	-0.10	1.35	-0.18	-0.59	-0.72
1.71	-0.26	1.35	-0.34	-0.55	-0.41
1.93	-0.05	0.65	-0.65	-0.94	-0.34
2.45	0.34	0.00	-0.56	-0.57	0.09
2.70	0.00	-0.04	-0.60	-0.41	-0.14
2.95	0.20	-0.69	-1.17	-0.88	-0.12
3.20	0.60	-0.17	-0.90	-0.70	0.25
3.45	0.24	0.14	-0.30	-0.55	0.04
3.70	-0.81	0.65	-0.52	-0.55	-1.11
3.95	-0.45	-0.08	-0.74	-0.88	-0.53
4.20	-0.15	0.04	-0.56	-0.73	-0.28
4.45	0.20	-0.42	-1.03	-0.64	-0.07
4.72	-0.53	-0.04	-0.65	-0.62	-0.63
4.95	-0.97	1.35	-0.65	-1.00	-1.01
5.21	-0.53	1.35	-0.85	-1.06	-0.75
5.44	-0.32	-0.62	-1.17	-1.17	-0.56
5.72	-0.79	1.35	-0.65	-0.75	-0.83
6.00	-1.05	-0.08	-0.74	-0.91	-0.88
6.23	-1.61	-0.86	-0.79	-1.06	-1.62
6.46	-0.85	-0.08	-1.03	-1.10	-0.84
6.98	-0.95	1.12	-0.60	-1.06	-1.00
7.23	-1.01	-0.12	-0.69	-0.66	-0.80
7.56	-1.10	0.04	-0.60	-0.88	-0.86
7.75	-1.90	-0.86	-1.03	-1.25	-1.50
8.01	-1.63	0.84	-0.69	-1.10	-1.39
8.98	-1.20	0.84	-0.52	-0.78	-1.42
9.28	-2.45	-1.11	-2.51	-3.24	-2.17
9.49	-2.26	-1.13	-2.48	-1.90	-2.06
9.74	-2.22	-1.00	-2.13	-1.90	-2.09
9.99	-2.69	-1.04	-2.38	-1.90	-2.21
10.24	-2.83	-1.09	-2.51	-2.07	-2.34
10.49	-2.91	-1.08	-2.54	-1.98	-2.34
10.74	-2.83	-0.96	-2.46	-1.98	-2.27
10.99	-2.91	-1.14	-2.64	-2.07	-2.39
11.24	-3.19	-1.22	-2.64	-2.16	-2.64
11.51	-3.22	-1.14	-2.57	-2.56	-2.63
11.76	-3.14	-1.03	-2.57	-2.56	-2.57
12.01	-3.27	-1.19	-2.57	-2.55	-2.66



MW-118

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

N-42 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-r\,t}$

$\ln(C_t/C_o) = -rt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

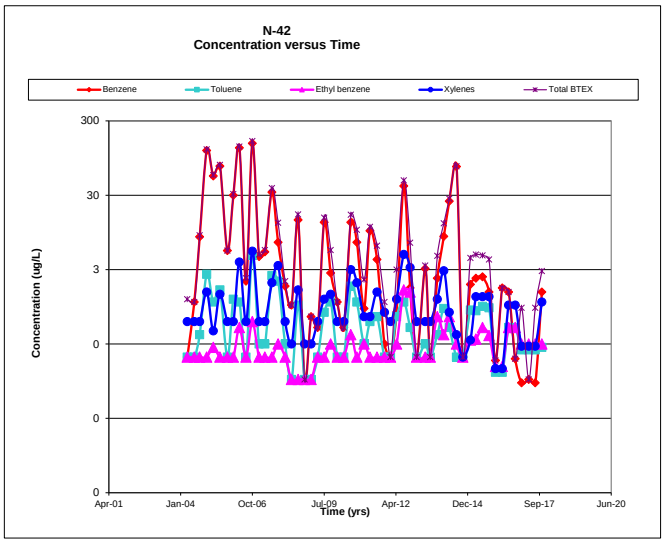
t = Time in years

r = Apparent first order rate constant (per year)

N-42	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.24	0.05	-0.05	0.04	0.19
R^2	0.212	0.044	0.112	0.045	0.160
Half-life (yrs)	2.9	14.2	NA	15.5	3.6

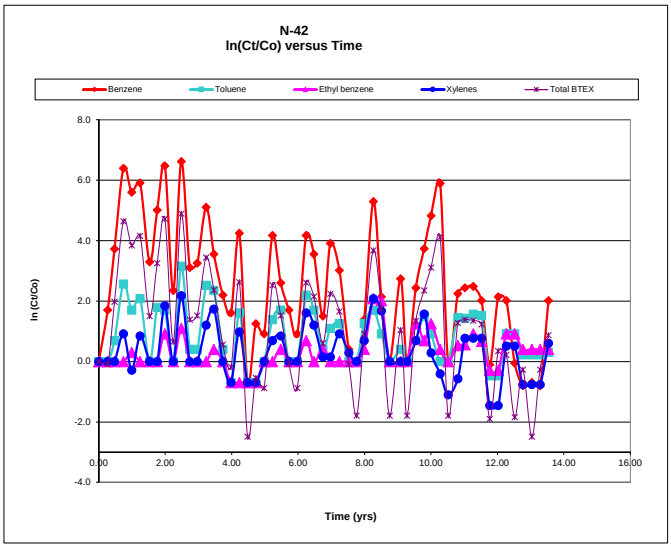
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Apr-04	0	0.2	0	1	1.2
Jul-04	1	0	0	1	1.1
Oct-04	8	0	0	1	8.7
Jan-05	120	3	0	2	124.3
Apr-05	54	1	0	0	55.95
Jul-05	74	2	0	1	77
Oct-05	5	0	0	1	5.4
Jan-06	30	1.2	0.2	0.6	31.2
Apr-06	130	1.1	0.5	3.8	135.4
Jul-06	2	0.2	0.2	0.6	2.3
Oct-06	150	5	0.6	5.3	160.6
Jan-07	4.5	0.3	0.2	0.6	4.8
Apr-07	5.2	0.3	0.2	0.6	5.5
Jul-07	33	2.5	0.2	2	37.5
Oct-07	7	2.1	0.3	3.4	12.8
Jan-08	1.8	0.3	0.2	0.6	2.1
Apr-08	1	0.1	0.1	0.3	1
Jul-08	14	1	0.1	1.6	16.6
Oct-08	0.1	0.1	0.1	0.3	0.1
Jan-09	0.7	0.1	0.1	0.3	0.7
Apr-09	0.5	0.2	0.2	0.6	0.5
Jul-09	13	0.8	0.2	1.2	15
Oct-09	2.7	1.1	0.3	1.4	5.5
Jan-10	1.1	0.2	0.2	0.6	1.1
Apr-10	0.5	0.2	0.2	0.6	0.5
Jul-10	13	1.8	0.4	3	16.4
Oct-10	7	1.1	0.2	2	10.3
Jan-11	0.9	0.3	0.3	0.7	2.2
Apr-11	10	0.6	0.2	0.7	11.3
Jul-11	4.1	0.7	0.2	1.5	6.3
Oct-11	0.3	0.2	0.2	0.8	1.1
Jan-12	0.2	0.2	0.2	0.6	0.2
Apr-12	0.8	0.7	0.3	1.2	3
Jul-12	40	1.1	1.6	4.8	47.5
Oct-12	1.7	0.5	1.5	3.2	6.9
Jan-13	0.2	0.2	0.2	0.6	0.2
May-13	3.1	0.3	0.2	0.6	3.4
Jul-13	0.2	0.2	0.2	0.6	0.2
Oct-13	2.3	0.4	0.7	1.2	4.6
Jan-14	8.4	0.9	0.4	2.9	12.6
Apr-14	25	0.5	0.7	0.8	27
Jul-14	73	0.2	0.3	0.4	73.7
Oct-14	0.2	0.2	0.2	0.2	0.2
Feb-15	1.9	0.9	0.3	0.3	4.3
Apr-15	2.3	0.8	0.4	1.3	4.8
Jul-15	2.4	1.0	0.5	1.3	4.7
Oct-15	1.5	0.9	0.4	1.3	4.1
Jan-16	0.18	0.1	0.2	0.1	0.2
Apr-16	1.7	0.1	0.2	0.1	1.7
Jul-16	1.5	0.5	0.5	1.0	1.5
Oct-16	0.19	0.5	0.5	1.0	0.2
Jan-17	0.09	0.25	0.3	0.28	0.92
Apr-17	0.1	0.25	0.3	0.28	0.1
Jul-17	0.09	0.25	0.3	0.28	0.92
Oct-17	1.5	0.27	0.3	1.1	2.87



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.27	1.70	0.00	0.00	0.00	-0.09
0.47	3.73	0.69	0.00	0.00	1.98
0.74	6.40	2.56	0.00	0.92	4.64
0.99	5.61	1.70	0.30	-0.29	3.84
1.24	5.91	2.08	0.00	0.85	4.16
1.53	3.30	0.00	0.00	0.00	1.50
1.76	5.01	1.79	0.00	0.00	3.26
1.99	6.48	1.70	0.92	1.85	4.73
2.24	2.35	0.00	0.00	0.00	0.65
2.48	6.62	3.16	1.10	2.18	4.90
2.74	3.11	0.41	0.00	0.00	1.39
2.96	3.26	0.41	0.00	0.00	1.52
3.23	5.11	2.53	0.00	1.20	3.44
3.47	3.56	2.35	0.41	1.73	2.37
3.73	2.20	0.41	0.00	0.00	0.56
3.98	1.61	-0.69	-0.69	-0.69	-0.18
4.23	4.25	1.61	-0.69	0.98	2.63
4.48	-0.69	-0.69	-0.69	-0.69	-2.48
4.73	1.25	-0.69	-0.69	-0.69	-0.54
4.98	0.92	0.00	0.00	0.00	-0.88
5.23	4.17	1.39	0.00	0.69	2.53
5.48	2.60	1.70	0.41	0.85	1.52
5.73	1.70	0.00	0.00	0.00	-0.09
5.98	0.92	0.00	0.00	0.00	-0.88
6.24	4.17	2.20	0.69	1.61	2.61
6.47	3.56	1.70	0.00	1.20	2.15
6.75	1.50	0.41	0.41	0.15	0.61
6.97	3.91	1.10	0.00	0.15	2.24
7.24	3.02	1.25	0.00	0.92	1.66
7.53	0.41	0.00	0.00	0.29	-0.09
7.76	0.00	0.00	0.00	0.00	-1.79
7.99	1.39	1.25	0.41	0.69	0.92
8.27	5.30	1.70	2.08	2.08	3.68
8.51	2.14	0.92	2.01	1.67	1.75
8.76	0.00	0.00	0.00	0.00	-1.79
9.08	2.74	0.41	0.00	0.00	1.04
9.28	0.00	0.00	0.00	0.00	-1.79
9.55	2.44	0.69	1.25	0.69	1.34
9.79	3.74	1.50	0.69	1.58	2.35
10.00	4.83	0.92	1.25	0.29	3.11
10.28	5.90	0.00	0.41	-0.41	4.12
10.52	0.00	0.00	0.00	-1.10	-1.79
10.81	2.25	1.46	0.53	-0.57	1.28
11.02	2.44	1.44	0.56	0.77	1.38
11.27	2.48	1.57	0.92	0.77	1.36
11.52	2.01	1.53	0.67	0.77	1.23
11.77	-0.11	-0.47	-0.29	-1.46	-1.90
12.02	2.14	-0.47	-0.29	-1.46	0.35
12.27	2.01	0.92	0.92	0.51	0.22
12.52	-0.05	0.92	0.92	0.51	-1.84
12.76	-0.80	0.22	0.41	-0.76	-0.27
13.04	-0.69	0.22	0.41	-0.76	-2.48
13.28	-0.80	0.22	0.41	-0.76	-0.27
13.54	2.01	0.30	0.41	0.61	0.87



N-42

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.482160156
R Square	0.232478416
Adjusted R Square	0.14719824
Standard Error	0.822077662
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.842299551	1.842299551	2.726054606	0.133118221
Residual	9	6.082305146	0.675811683		
Total	10	7.924604697			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.801660232	0.645852158	1.241244179	0.245892059	-0.659359967	2.26268043	-0.659359967	2.26268043
X Variable 1	-0.193782447	0.117367312	-1.651076802	0.133118221	-0.459285955	0.071721062	-0.459285955	0.071721062

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.422104629
R Square	0.178172317
Adjusted R Square	0.086858131
Standard Error	0.984318554
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.890485346	1.890485346	1.951200832	0.195942097
Residual	9	8.719947143	0.968883016		
Total	10	10.61043249			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.126395813	0.773314118	1.456582503	0.179215728	-0.622963591	2.875755218	-0.622963591	2.875755218
X Variable 1	-0.196300303	0.140530303	-1.396853905	0.195942097	-0.514202177	0.121601571	-0.514202177	0.121601571

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.499150807
R Square	0.249151528
Adjusted R Square	0.16572392
Standard Error	1.392853776
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.79381754	5.79381754	2.986439785	0.118030577
Residual	9	17.46037477	1.940041641		
Total	10	23.25419231			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.588428747	1.094273276	0.537734732	0.603800455	-1.88699127	3.063848763	-1.88699127	3.063848763
X Variable 1	-0.343650293	0.198856521	-1.728131877	0.118030577	-0.79349534	0.106194753	-0.79349534	0.106194753

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.546071795
R Square	0.298194405
Adjusted R Square	0.220216005
Standard Error	0.800143777
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.448280859	2.448280859	3.82406419	0.082234115
Residual	9	5.76207057	0.640230063		
Total	10	8.210351429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.06677361	0.628620152	-0.106222509	0.917735778	-1.488812272	1.355265053	-1.488812272	1.355265053
X Variable 1	-0.223390618	0.114235831	-1.955521462	0.082234115	-0.481810218	0.035028981	-0.481810218	0.035028981

RFI-4 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

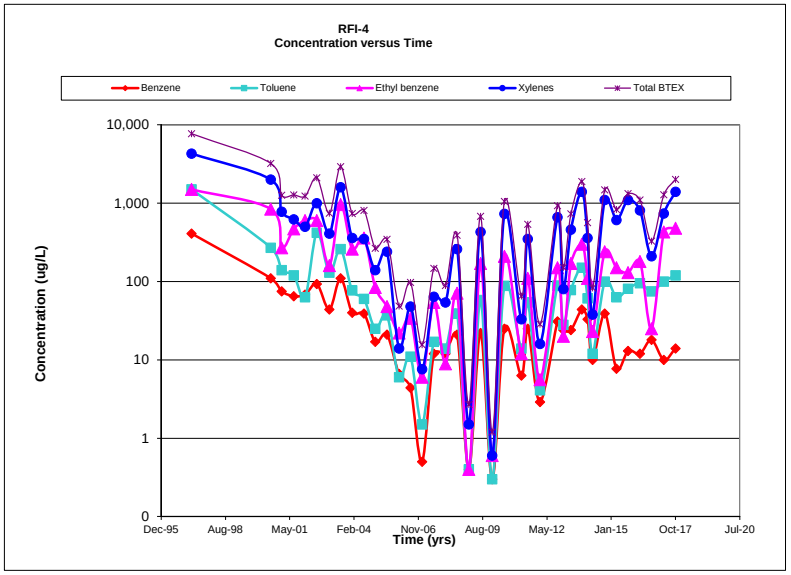
t = Time in years

k = Apparent first order rate constant (per year)

RFI-4	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Constant (per yr)	0.10	0.06	0.08	0.03	0.05
R^2	0.148	0.031	0.058	0.006	0.018
Half-life (yrs)	6.6	12.4	8.4	25.7	15.1

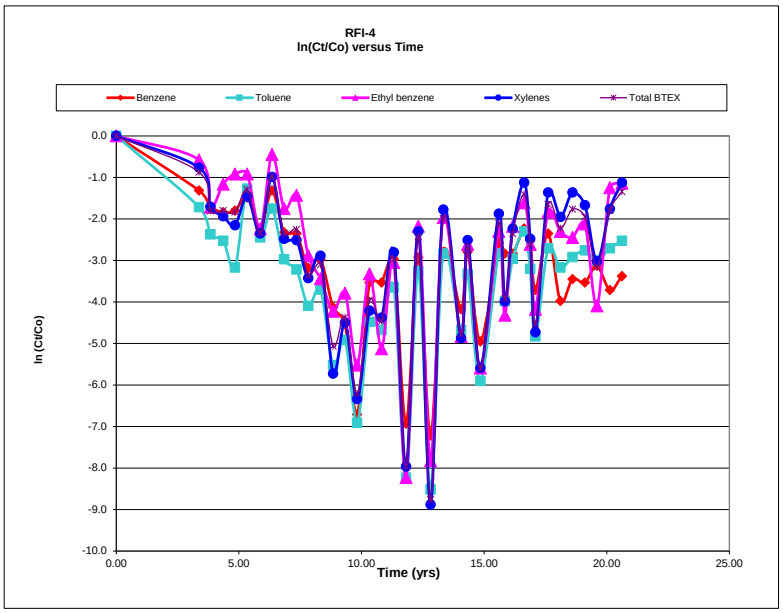
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Mar-97	410	1,500.0	1,500	4,300	7710
Aug-00	110	270	840	2,000	3220
Jan-01	75	140	270	780	1265
Jul-01	65	120	470	620	1275
Jan-02	68	63	600	500	1231
Jul-02	93	420	600	1,000	2113
Jan-03	44	130	160	410	744
Jul-03	110	260	960	1600	2930
Jan-04	40	77	260	360	737
Jul-04	39	60.0	360.0	350.0	809
Jan-05	17	25	84	140.0	266
Jul-05	21	37	48	240	346
Jan-06	6.6	6	22	14	48.6
Jul-06	4.4	11	34	48	97.4
Jan-07	0.5	1.5	6	7.6	15.6
Jul-07	12	17	54	64	147
Jan-08	12	14	8.9	54	88.9
Jul-08	21	39	71	260	391
Jan-09	0.4	0.4	0.4	1.5	2.7
Jul-09	22	58	170	430	680
Jan-10	0.3	0.3	0.6	0.6	1.2
Jul-10	25	88	210	730	1053
Apr-11	6.3	14	12	33	65.3
Jul-11	25	54	110	350	539
Jan-12	2.9	4.1	5.6	16	28.6
Oct-12	31	89	150	660	930
Jan-13	24	28	20	80	152
May-13	24	78	170	460	732
Oct-13	44	150	300	1400	1894
Jan-14	33	61	110	360	564
Apr-14	10	12	23	38	83
Oct-14	39	100	240	1100	1479
Apr-15	7.7	63	150	610	830.7
Oct-15	13	81	130	1100	1324
Apr-16	12	95	180	810	1097
Oct-16	18	75	25	210	328
Apr-17	10	100	430	740	1280
Oct-17	14	120	480	1400	2014



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
3.38	-1.32	-1.71	-0.58	-0.77	-0.87
3.84	-1.70	-2.37	-1.71	-1.71	-1.81
4.36	-1.84	-2.53	-1.16	-1.94	-1.80
4.84	-1.80	-3.17	-0.92	-2.15	-1.83
5.34	-1.48	-1.27	-0.92	-1.46	-1.29
5.87	-2.23	-2.45	-2.24	-2.35	-2.34
6.35	-1.32	-1.75	-0.45	-0.99	-0.97
6.84	-2.33	-2.97	-1.75	-2.48	-2.35
7.35	-2.35	-3.22	-1.43	-2.51	-2.25
7.83	-3.18	-4.09	-2.88	-3.42	-3.37
8.33	-2.97	-3.70	-3.44	-2.89	-3.10
8.84	-4.13	-5.52	-4.22	-5.73	-5.07
9.33	-4.53	-4.92	-3.79	-4.50	-4.37
9.82	-6.71	-6.91	-5.52	-6.34	-6.20
10.32	-3.53	-4.48	-3.32	-4.21	-3.96
10.82	-3.53	-4.67	-5.13	-4.38	-4.46
11.32	-2.97	-3.65	-3.05	-2.81	-2.98
11.81	-6.93	-8.23	-8.23	-7.96	-7.96
12.32	-2.93	-3.25	-2.18	-2.30	-2.43
12.81	-7.22	-8.52	-7.82	-8.88	-8.77
13.33	-2.80	-2.84	-1.97	-1.77	-1.99
14.06	-4.18	-4.67	-4.83	-4.87	-4.77
14.33	-2.80	-3.32	-2.61	-2.51	-2.66
14.85	-4.95	-5.90	-5.59	-5.59	-5.60
15.60	-2.58	-2.82	-2.30	-1.87	-2.12
15.84	-2.84	-3.98	-4.32	-3.98	-3.93
16.17	-2.84	-2.96	-2.18	-2.24	-2.35
16.63	-2.23	-2.30	-1.61	-1.12	-1.40
16.88	-2.52	-3.20	-2.61	-2.48	-2.62
17.09	-3.71	-4.83	-4.18	-4.73	-4.53
17.61	-2.35	-2.71	-1.83	-1.36	-1.65
18.11	-3.97	-3.17	-2.30	-1.95	-2.23
18.60	-3.45	-2.92	-2.45	-1.36	-1.76
19.11	-3.53	-2.76	-2.12	-1.67	-1.95
19.60	-3.13	-3.00	-4.09	-3.02	-3.16
20.13	-3.71	-2.71	-1.25	-1.76	-1.80
20.62	-3.38	-2.53	-1.14	-1.12	-1.34



RFI-4

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.880550002
R Square	0.775368307
Adjusted R Square	0.75040923
Standard Error	0.402720285
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	5.038329137	5.038329137	31.0655841	0.000345757
Residual	9	1.459652652	0.162183628		
Total	10	6.497981789			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.14856659	0.316390746	-0.46956679	0.64983288	-0.864292726	0.567159551	-0.86429273	0.567159551
X Variable 1	-0.32046277	0.057496025	-5.57365088	0.00034576	-0.450527911	-0.19039762	-0.45052791	-0.19039762

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.797481538
R Square	0.635976803
Adjusted R Square	0.595529781
Standard Error	0.70614895
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	7.840565018	7.840565018	15.7236991	0.003277811
Residual	9	4.487817061	0.49864634		
Total	10	12.32838208			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.29005727	0.554774621	-0.52283802	0.61371287	-1.545045605	0.964931073	-1.5450456	0.964931073
X Variable 1	-0.39976797	0.100816271	-3.96531198	0.00327781	-0.627830391	-0.17170554	-0.62783039	-0.17170554

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.675678375
R Square	0.456541267
Adjusted R Square	0.396156963
Standard Error	0.65116375
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3.205799879	3.205799879	7.56059503	0.022489553
Residual	9	3.816128068	0.42401423		
Total	10	7.021927947			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.023116536	0.511576379	0.045186872	0.96494509	-1.134150515	1.180383587	-1.13415051	1.180383587
X Variable 1	-0.25562452	0.092966082	-2.74965362	0.02248955	-0.465928572	-0.04532048	-0.46592857	-0.04532048

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.825198341
R Square	0.680952302
Adjusted R Square	0.645502557
Standard Error	0.56932039
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	6.226113914	6.226113914	19.2089482	0.001763918
Residual	9	2.917131361	0.324125707		
Total	10	9.143245275			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.01277557	0.447277453	0.028562964	0.97783649	-0.999037095	1.024588234	-0.99903709	1.024588234
X Variable 1	-0.35624013	0.081281377	-4.38280141	0.00176392	-0.54011152	-0.17236874	-0.54011152	-0.17236874

RFI-6 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

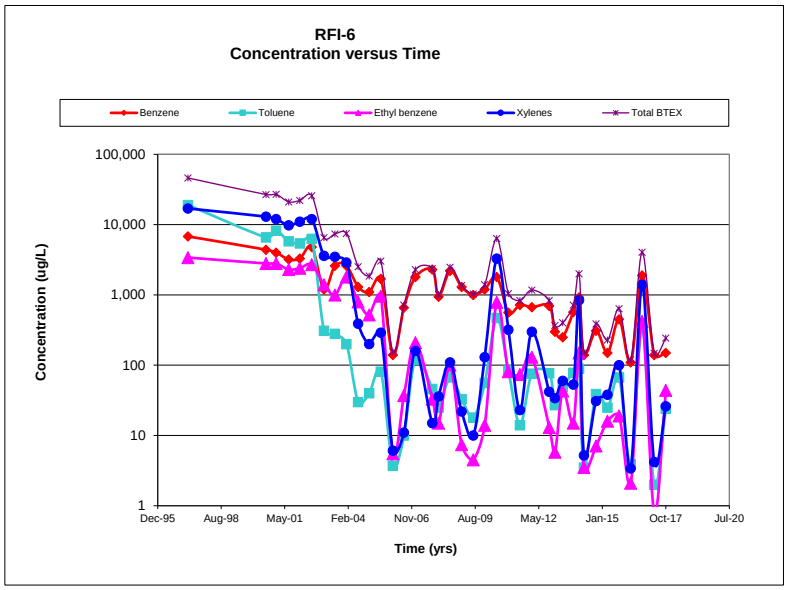
t = Time in years

k = Apparent first order rate constant (per year)

RFI-6	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.16	0.28	0.33	0.32	0.24
R^2	0.609	0.462	0.555	0.458	0.656
Half-life (yrs)	4.3	2.4	2.1	2.1	2.9

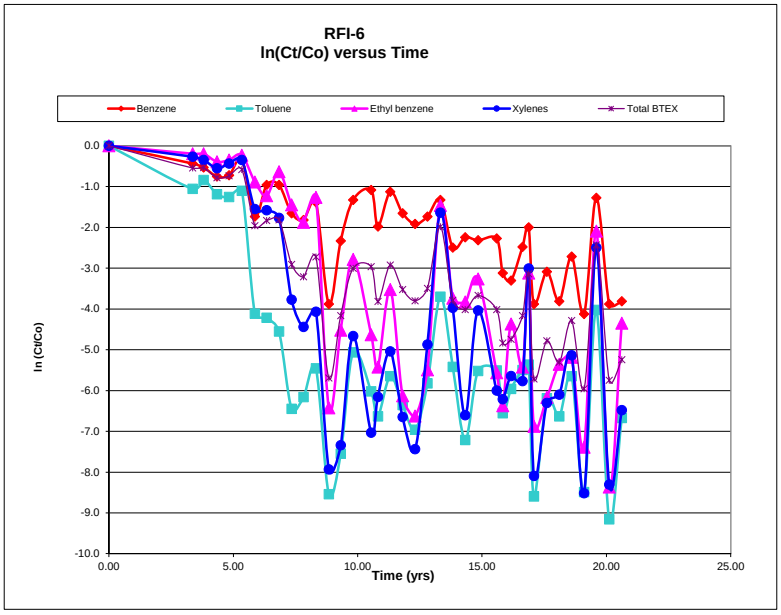
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Mar-97	6,800	19,000.0	3,400	17,000	46200
Aug-00	4,400	6,600	2,800	13,000	26800
Jan-01	4,000	8,200	2,800	12,000	27000
Jul-01	3,200	5,800	2,300	9,800	21100
Jan-02	3,300	5,400	2,400	11,000	22100
Jul-02	4,800	6,300	2,700	12,000	25800
Jan-03	1,200	310	1,400	3,600	6510
Jul-03	2600	280	1000	3500	7380
Jan-04	2600	200	1800	2900	7500
Jul-04	1,300	30.0	800.0	390.0	2520
Jan-05	1,100	40	520	200.0	1860
Jul-05	1700	81	960	290	3031
Jan-06	140	3.7	5.5	6.1	155.3
Jul-06	660	10	37	11	718
Jan-07	1800	120	210	160	2290
Oct-07	2300	46	33	15	2379
Jan-08	940	25	15	36	1016
Jul-08	2200	67	100	110	2477
Jan-09	1300	33	7.4	22	1362.4
Jul-09	1000	18	4.5	10	1032.5
Jan-10	1200	56	14	130	1400
Jul-10	1800	470	790	3300	6360
Jan-11	560	84	81	320	1045
Jul-11	720	14	74	23	831
Jan-12	670	76	130	300	1176
Oct-12	700	77	13	42	832
Jan-13	300	27	5.8	34	366.8
May-13	250	49	43	60	402
Oct-13	570	78	15	53	716
Jan-14	920	89	150	840	1999
Apr-14	140	3.5	3.5	5.2	152.2
Oct-14	310	39	7.1	31	387.1
Apr-15	150	25	16	38	229
Oct-15	450	67	19	100	636
Apr-16	110	3.9	2.1	3.4	119.4
Oct-16	1900	340	420	1400	4060
Apr-17	140	2	0.79	4.2	146.99
Oct-17	150	24	44	26	244



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
3.37	-0.44	-1.06	-0.19	-0.27	-0.54
3.81	-0.53	-0.84	-0.19	-0.35	-0.54
4.35	-0.75	-1.19	-0.39	-0.55	-0.78
4.83	-0.72	-1.26	-0.35	-0.44	-0.74
5.34	-0.35	-1.10	-0.23	-0.35	-0.58
5.87	-1.73	-4.12	-0.89	-1.55	-1.96
6.34	-0.96	-4.22	-1.22	-1.58	-1.83
6.84	-0.96	-4.55	-0.64	-1.77	-1.82
7.35	-1.65	-6.45	-1.45	-3.77	-2.91
7.82	-1.82	-6.16	-1.88	-4.44	-3.21
8.32	-1.39	-5.46	-1.26	-4.07	-2.72
8.84	-3.88	-8.54	-6.43	-7.93	-5.70
9.32	-2.33	-7.55	-4.52	-7.34	-4.16
9.82	-1.33	-5.06	-2.78	-4.67	-3.00
10.54	-1.08	-6.02	-4.64	-7.03	-2.97
10.81	-1.98	-6.63	-5.42	-6.16	-3.82
11.31	-1.13	-5.65	-3.53	-5.04	-2.93
11.81	-1.65	-6.36	-6.13	-6.65	-3.52
12.31	-1.92	-6.96	-6.63	-7.44	-3.80
12.80	-1.73	-5.83	-5.49	-4.87	-3.50
13.33	-1.33	-3.70	-1.46	-1.64	-1.98
13.82	-2.50	-5.42	-3.74	-3.97	-3.79
14.32	-2.25	-7.21	-3.83	-6.61	-4.02
14.84	-2.32	-5.52	-3.26	-4.04	-3.67
15.59	-2.27	-5.51	-5.57	-6.00	-4.02
15.83	-3.12	-6.56	-6.37	-6.21	-4.84
16.17	-3.30	-5.96	-4.37	-5.65	-4.74
16.62	-2.48	-5.50	-5.42	-5.77	-4.17
16.87	-2.00	-5.36	-3.12	-3.01	-3.14
17.08	-3.88	-8.60	-6.88	-8.09	-5.72
17.61	-3.09	-6.19	-6.17	-6.31	-4.78
18.10	-3.81	-6.63	-5.36	-6.10	-5.31
18.60	-2.72	-5.65	-5.19	-5.14	-4.29
19.10	-4.12	-8.49	-7.39	-8.52	-5.96
19.59	-1.28	-4.02	-2.09	-2.50	-2.43
20.12	-3.88	-9.16	-8.37	-8.31	-5.75
20.62	-3.81	-6.67	-4.35	-6.48	-5.24



RFI-6

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.817023576
R Square	0.667527524
Adjusted R Square	0.630586137
Standard Error	0.366808553
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.431279549	2.431279549	18.06990996	0.002139721
Residual	9	1.210936634	0.134548515		
Total	10	3.642216182			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.228960744	0.288177269	0.794513546	0.447339961	-0.422942026	0.880863515	-0.422942026	0.880863515
X Variable 1	-0.222613634	0.052368938	-4.250871671	0.002139721	-0.341080493	-0.104146776	-0.341080493	-0.104146776

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.859232719
R Square	0.738280866
Adjusted R Square	0.709200962
Standard Error	1.25347459
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	39.88960324	39.88960324	25.38800922	0.00070107
Residual	9	14.14078694	1.571198548		
Total	10	54.03039018			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.76856076	0.98477225	1.795908404	0.10607522	-0.459150537	3.996272057	-0.459150537	3.996272057
X Variable 1	-0.901704361	0.178957476	-5.038651528	0.00070107	-1.306534606	-0.496874116	-1.306534606	-0.496874116

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.808941248
R Square	0.654385943
Adjusted R Square	0.615984381
Standard Error	0.376594316
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.416754825	2.416754825	17.04060751	0.002567027
Residual	9	1.276409507	0.141823279		
Total	10	3.693164331			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.452387837	0.295865297	1.529033118	0.160609072	-0.216906473	1.121682147	-0.216906473	1.121682147
X Variable 1	-0.22194768	0.053766043	-4.128027072	0.002567027	-0.343575011	-0.100320348	-0.343575011	-0.100320348

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.78043815
R Square	0.609083705
Adjusted R Square	0.565648562
Standard Error	0.981608683
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	13.51177797	13.51177797	14.02283155	0.004592016
Residual	9	8.672000461	0.963555607		
Total	10	22.18377843			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.296746432	0.771185151	1.681498185	0.126963129	-0.447796911	3.041289775	-0.447796911	3.041289775
X Variable 1	-0.524796055	0.140143417	-3.744707139	0.004592016	-0.841822732	-0.207769378	-0.841822732	-0.207769378

RFI-8R **Calculation of Apparent First Order Attenuation Rate Constants** **2014**

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

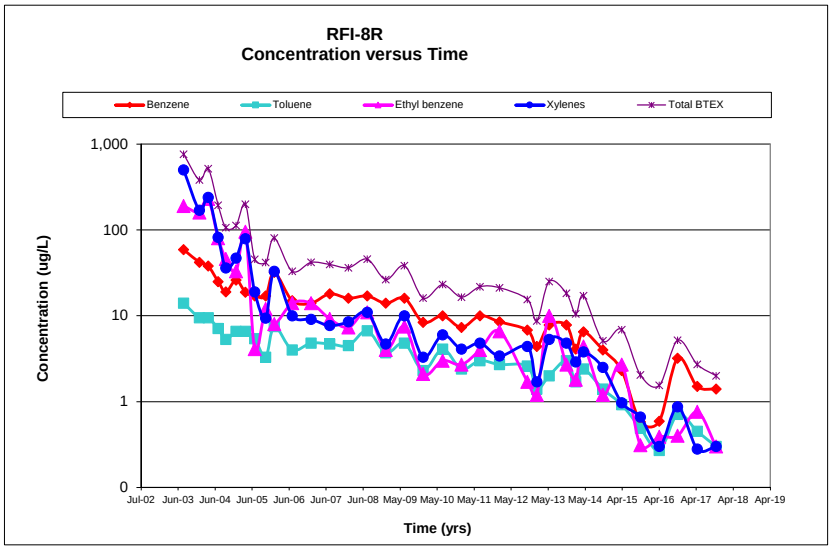
t = Time in years

k = Apparent first order rate constant (per year)

RFI-8R	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.23	0.20	0.36	0.37	0.32
R^2	0.811	0.795	0.757	0.815	0.832
Half-life (yrs)	3.0	3.5	1.9	1.9	2.2

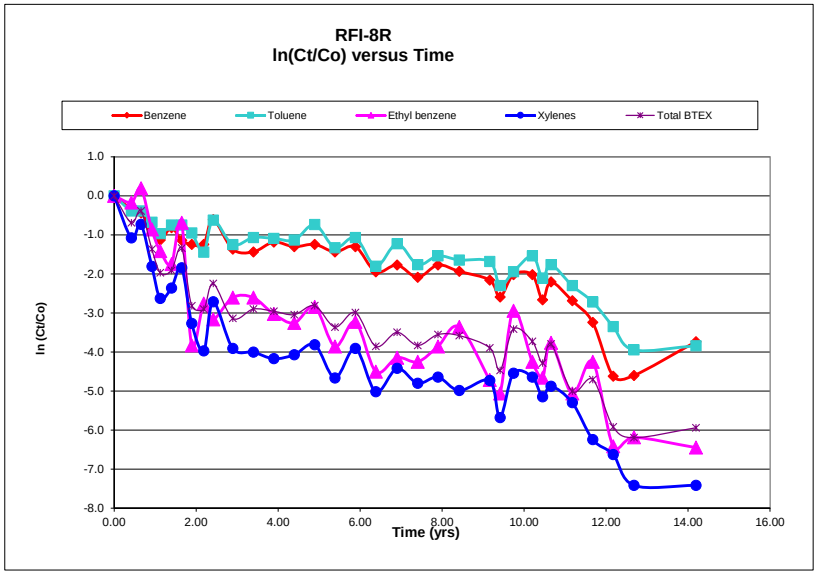
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Aug-03	59	14.0	190	500	763
Jan-04	42	10	160	170	381.5
Apr-04	38	10	230	240	517.5
Jul-04	25	7	80	82	194.1
Oct-04	19	5	46	36	106.3
Jan-05	26	7	33	47	112.6
Apr-05	19	7	95	79	199.7
Jul-05	17	5.4	4.1	19	45.5
Oct-05	17	3.3	12	9.4	41.7
Jan-06	32	7.5	8.0	33.0	80.5
Jul-06	15	4	14	10.0	33
Jan-07	14	4.8	14	9.1	41.9
Jul-07	18	4.7	9.2	7.7	39.6
Jan-08	16	4.5	7.3	8.5	36.3
Jul-08	17	6.7	11	11	45.7
Jan-09	14	3.7	4	4.7	26.4
Jul-09	16	4.8	7.5	10	38.3
Jan-10	8.4	2.3	2.1	3.3	16.1
Jul-10	10	4.1	3	6	23.1
Jan-11	7.3	2.4	2.7	4.1	16.5
Jul-11	10	3	4	4.8	21.8
Jan-12	8.5	2.7	6.6	3.4	21.2
Oct-12	6.8	2.6	1.7	4.4	15.5
Jan-13	4.4	1.4	1.2	1.7	8.7
May-13	7.8	2	10	5.3	25.1
Oct-13	7.8	3	2.7	4.8	18.3
Jan-14	4.1	1.7	1.8	2.9	10.5
Apr-14	6.5	2.4	4.4	3.8	17.1
Oct-14	4	1.4	1.2	2.5	5.1
Apr-15	2.3	0.92	2.7	0.97	6.89
Oct-15	0.58	0.49	0.31	0.66	2.04
Apr-16	0.59	0.27	0.39	0.3	1.55
Oct-16	3.2	0.71	0.4	0.87	5.18
Apr-17	1.5	0.45	0.76	0.28	2.71
Oct-17	1.4	0.3	0.3	0.3	2



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.42	-0.34	-0.39	-0.17	-1.08	-0.69
0.65	-0.44	-0.39	0.19	-0.73	-0.39
0.92	-0.86	-0.68	-0.86	-1.81	-1.37
1.13	-1.13	-0.97	-1.42	-2.63	-1.97
1.40	-0.82	-0.75	-1.75	-2.36	-1.91
1.65	-1.14	-0.75	-0.69	-1.85	-1.34
1.89	-1.24	-0.95	-3.84	-3.27	-2.82
2.19	-1.24	-1.45	-2.76	-3.97	-2.91
2.42	-0.61	-0.62	-3.17	-2.72	-2.25
2.89	-1.37	-1.25	-2.61	-3.91	-3.14
3.39	-1.44	-1.07	-2.61	-4.01	-2.90
3.89	-1.19	-1.09	-3.03	-4.17	-2.96
4.39	-1.30	-1.13	-3.26	-4.07	-3.05
4.89	-1.24	-0.74	-2.85	-3.82	-2.82
5.39	-1.44	-1.33	-3.86	-4.67	-3.36
5.88	-1.30	-1.07	-3.23	-3.91	-2.99
6.38	-1.95	-1.81	-4.51	-5.02	-3.86
6.90	-1.77	-1.23	-4.15	-4.42	-3.50
7.40	-2.09	-1.76	-4.25	-4.80	-3.83
7.90	-1.77	-1.54	-3.86	-4.65	-3.56
8.42	-1.94	-1.65	-3.36	-4.99	-3.58
9.16	-2.16	-1.68	-4.72	-4.73	-3.90
9.41	-2.60	-2.30	-5.06	-5.68	-4.47
9.74	-2.02	-1.95	-2.94	-4.55	-3.41
10.20	-2.02	-1.54	-4.25	-4.65	-3.73
10.45	-2.67	-2.11	-4.66	-5.15	-4.29
10.66	-2.21	-1.76	-3.77	-4.88	-3.80
11.17	-2.69	-2.30	-5.06	-5.30	-5.01
11.67	-3.24	-2.72	-4.25	-6.25	-4.71
12.17	-4.62	-3.35	-6.42	-6.63	-5.92
12.68	-4.61	-3.95	-6.19	-7.42	-6.20
14.19	-3.74	-3.84	-6.45	-7.42	-5.94



RFI-8R

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.90587964
R Square	0.820617923
Adjusted R Square	0.775772403
Standard Error	0.195529863
Observations	6

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.699597309	0.699597309	18.29877175	0.012871074
Residual	4	0.152927709	0.038231927		
Total	5	0.852525017			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.034450137	0.154138671	-0.223500936	0.834096174	-0.462408584	0.393508309	-0.462408584	0.393508309
X Variable 1	-0.755983192	0.176726294	-4.277706365	0.012871074	-1.246655061	-0.265311322	-1.246655061	-0.265311322

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.921573472
R Square	0.849297664
Adjusted R Square	0.81162208
Standard Error	0.148791447
Observations	6

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.499063569	0.499063569	22.54238878	0.008984891
Residual	4	0.088555578	0.022138895		
Total	5	0.587619147			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.053236227	0.117294185	-0.453869278	0.673458124	-0.378897768	0.272425314	-0.378897768	0.272425314
X Variable 1	-0.638507508	0.134482583	-4.747882558	0.008984891	-1.01189179	-0.265123227	-1.01189179	-0.265123227

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.869769741
R Square	0.756499402
Adjusted R Square	0.695624253
Standard Error	0.44164343
Observations	6

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.423885475	2.423885475	12.42706439	0.024335533
Residual	4	0.780195676	0.195048919		
Total	5	3.204081151			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.380794697	0.348153119	1.093756385	0.335510168	-0.585835328	1.347424722	-0.585835328	1.347424722
X Variable 1	-1.407162078	0.399171796	-3.525204163	0.024335533	-2.515442954	-0.298881202	-2.515442954	-0.298881202

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.933384197
R Square	0.871206059
Adjusted R Square	0.839007574
Standard Error	0.405672143
Observations	6

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	4.452826972	4.452826972	27.05736173	0.006508688
Residual	4	0.658279549	0.164569887		
Total	5	5.111106521			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.013006663	0.319796497	-0.040671688	0.969506742	-0.900905921	0.874892595	-0.900905921	0.874892595
X Variable 1	-1.907242802	0.366659769	-5.201669129	0.006508688	-2.925255631	-0.889229972	-2.925255631	-0.889229972

RFI-9 Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k\,t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

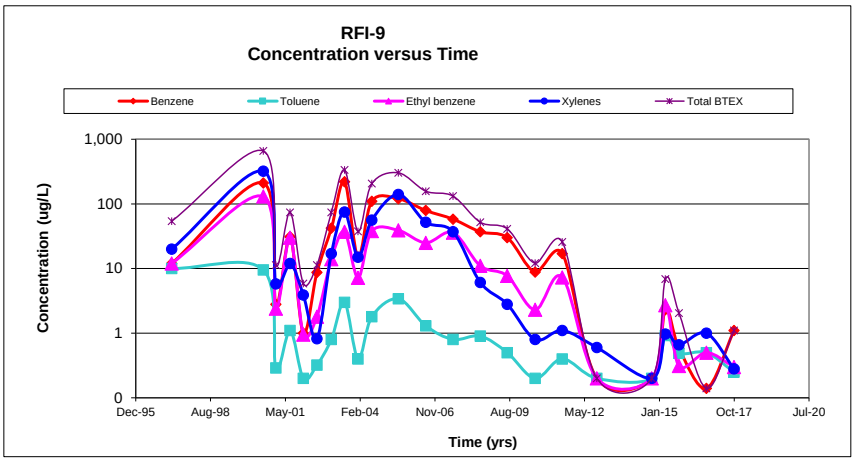
t = Time in years

k = Apparent first order rate constant (per year)

RFI-9	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.24	0.10	0.21	0.25	0.28
R^2	0.373	0.272	0.431	0.504	0.480
Half-life (yrs)	2.9	6.8	3.2	2.8	2.4

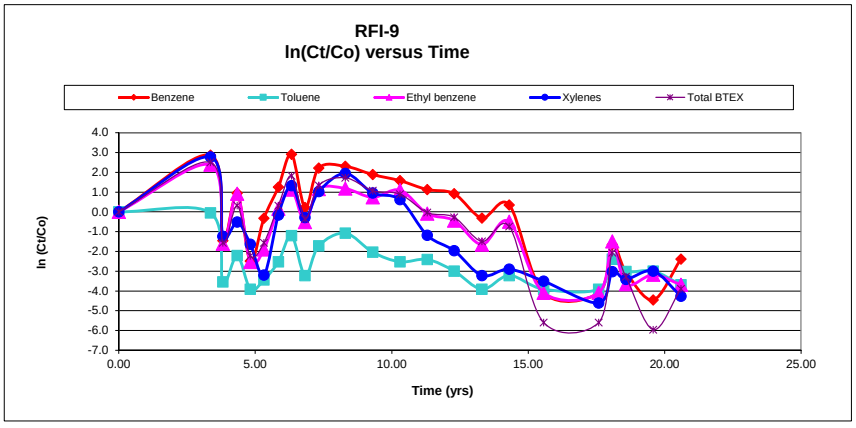
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Mar-97	12	10.0	12	20	54
Aug-00	210	10	130	320	660
Jan-01	3	0	2	6	11.29
Jul-01	31	1	30	12	74.1
Jan-02	1	0	1	4	5.85
Jul-02	9	0	2	1	11.32
Jan-03	42	1	14	17	73.8
Jul-03	220	3	37	75	335
Jan-04	15	0.4	7.2	15	37.6
Jul-04	110	1.8	38.0	56.0	205.8
Jul-05	120	3	39	140.0	302.4
Jul-06	79	1.3	25	52	157.3
Jul-07	58	0.8	36	37	131.8
Jul-08	37	0.9	11	6.1	52
Jul-09	30	0.5	7.7	2.8	41
Jul-10	8.8	0.2	2.3	0.8	12.1
Jul-11	17	0.4	7.3	1.1	25.8
Oct-12	0.2	0.2	0.2	0.6	0.2
Oct-14	0.2	0.2	0.2	0.2	0.2
Apr-15	2.3	0.92	2.7	0.97	6.89
Oct-15	0.58	0.49	0.31	0.66	2.04
Oct-16	0.14	0.5	0.5	1	0.14
Oct-17	1.1	0.25	0.3	0.28	1.1



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl benzene ln(Ct/Co)	Xylenes ln(Ct/Co)	Total BTEX ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
3.36	2.86	-0.05	2.38	2.77	2.50
3.81	-1.46	-3.54	-1.61	-1.24	-1.57
4.34	0.95	-2.21	0.92	-0.51	0.32
4.82	-2.48	-3.91	-2.54	-1.63	-2.22
5.32	-0.32	-3.44	-1.90	-3.19	-1.56
5.85	1.25	-2.53	0.15	-0.16	0.31
6.33	2.91	-1.20	1.13	1.32	1.83
6.82	0.22	-3.22	-0.51	-0.29	-0.36
7.33	2.22	-1.71	1.15	1.03	1.34
8.30	2.30	-1.08	1.18	1.95	1.72
9.30	1.88	-2.04	0.73	0.96	1.07
10.30	1.58	-2.53	1.10	0.62	0.89
11.30	1.13	-2.41	-0.09	-1.19	-0.04
12.29	0.92	-3.00	-0.44	-1.97	-0.28
13.31	-0.31	-3.91	-1.65	-3.22	-1.50
14.31	0.35	-3.22	-0.50	-2.90	-0.74
15.57	-4.09	-3.91	-4.09	-3.51	-5.60
17.58	-4.09	-3.91	-4.09	-4.61	-5.60
18.08	-1.65	-2.39	-1.49	-3.03	-2.06
18.58	-3.03	-3.02	-3.66	-3.41	-3.28
19.58	-4.45	-3.00	-3.18	-3.00	-5.96
20.60	-2.39	-3.69	-3.69	-4.27	-3.89



RFI-9

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.243528228
R Square	0.059305998
Adjusted R Square	-0.058280753
Standard Error	1.836909832
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.701828947	1.701828947	0.504359527	0.497767043
Residual	8	26.99390186	3.374237733		
Total	9	28.69573081			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.368024385	1.501092021	-0.245171102	0.812495998	-3.829551032	3.093502261	-3.829551032	3.093502261
X Variable 1	0.204568753	0.288050864	0.710182742	0.497767043	-0.459678161	0.868815667	-0.459678161	0.868815667

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.472168659
R Square	0.222943242
Adjusted R Square	0.125811147
Standard Error	1.325775939
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	4.034333755	4.034333755	2.295258254	0.168234818
Residual	8	14.06145473	1.757681841		
Total	9	18.09578849			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.668155746	1.083401945	-0.616720091	0.554559984	-3.166486726	1.830175234	-3.166486726	1.830175234
X Variable 1	-0.314968597	0.207898558	-1.515010975	0.168234818	-0.794383841	0.164446647	-0.794383841	0.164446647

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.009724243
R Square	9.45609E-05
Adjusted R Square	-0.124893619
Standard Error	1.656420471
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.002075792	0.002075792	0.000756559	0.97873023
Residual	8	21.94983022	2.743728778		
Total	9	21.95190601			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.11651325	1.353599131	-0.086076629	0.933520845	-3.237920463	3.004893962	-3.237920463	3.004893962
X Variable 1	0.007144523	0.259747833	0.027505612	0.97873023	-0.591835441	0.606124488	-0.591835441	0.606124488

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.016188205
R Square	0.000262058
Adjusted R Square	-0.124705185
Standard Error	1.764337075
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.006527763	0.006527763	0.002097014	0.964597579
Residual	8	24.90308252	3.112885315		
Total	9	24.90961029			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.129507476	1.441786777	-0.089824292	0.93063499	-3.454275895	3.195260943	-3.454275895	3.195260943
X Variable 1	-0.012669618	0.276670531	-0.04579316	0.964597579	-0.65067342	0.625334184	-0.65067342	0.625334184

RW-1A Calculation of Apparent First Order Attenuation Rate Constants

$C_t = C_o * e^{-k t}$

$\ln(C_t/C_o) = -kt$

where:

C_t = Concentration at time t in years

C_o = Initial concentration

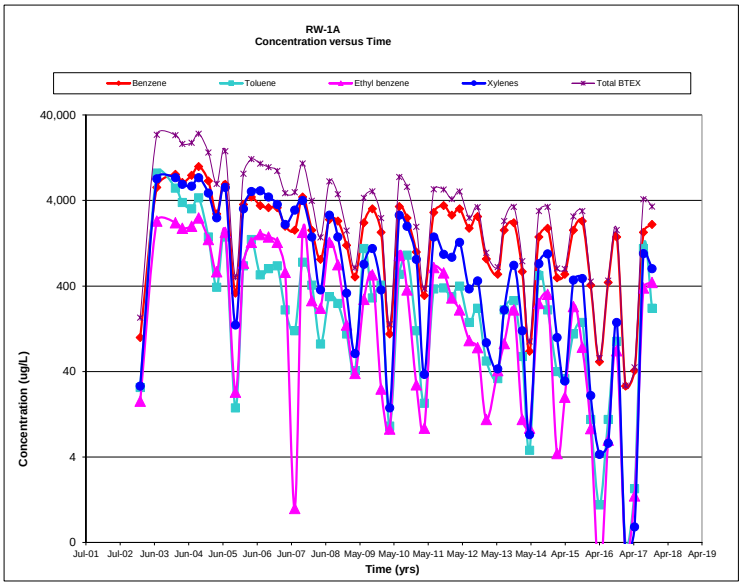
t = Time in years

k = Apparent first order rate constant (per year)

RW-1A	Benzene	Toluene	Ethyl benzene	Xylenes	Total BTEX
Rate Contant (per yr)	0.16	0.29	0.32	0.35	0.22
R^2	0.241	0.342	0.317	0.399	0.324
Half-life (yrs)	4.4	2.4	2.2	2.0	3.2

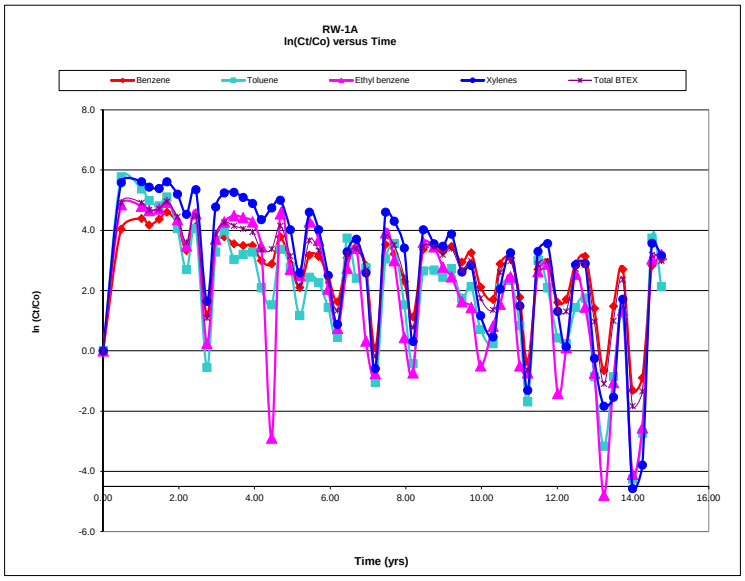
Concentration versus Time

Date	Benzene ug/L	Toluene ug/L	Ethyl benzene ug/L	Xylenes ug/L	Total BTEX ug/L
Jan-03	100	26.0	18	27	171
Jul-03	5,700	8,400	2,300	7,200	23600
Feb-04	8,100	5,600	2,200	7,400	23300
Apr-04	6,500	3,800	1,900	6,200	18400
Jul-04	7,900	3,200	2,000	5,900	19000
Oct-04	10,000	4,300	2,500	7,400	24200
Jan-05	6,800	1,500	1,400	4,900	14600
Apr-05	2790	387	587	2510	6274
Jul-05	6200	1500	1700	5700	15100
Oct-05	330	15.0	23.0	140.0	508
Jan-06	3,600	690	740	3,200.0	8230
Apr-06	4,400	1,400	1300	5,100.0	12200
Jul-06	3,500	540	1600	5,200.0	10840
Oct-06	3300	640	1500	4400	9840
Jan-07	3300	690	1300	3600	8890
Apr-07	2000	210	580	2100	4890
Jul-07	1800	120	1	3100	5020
Oct-07	4400	760	1700	4000	10860
Jan-08	1800	410	270	1500	3980
Apr-08	820	84	220	360	1484
Jul-08	2400	300	1300	2700	6700
Oct-08	2300	250	710	1500	4760
Jan-09	1200	110	140	330	1780
Apr-09	510	41	38	65	654
Jul-09	2200	1100	280	720	4300
Oct-09	3200	290	540	1100	5130
Jan-10	1700	410	25	360	2495
Apr-10	110	9.2	8.5	15	142.7
Jul-10	3400	550	910	2700	7560
Oct-10	2500	920	360	2000	5780
Jan-11	1000	120	28	820	1968
Apr-11	310	17	8.7	37	372.7
Jul-11	2900	370	660	1500	5430
Oct-11	3500	380	570	940	5390
Jan-12	2700	300	290	870	4160
Apr-12	3200	400	210	1300	5110
Jul-12	1900	150	92	370	2512
Oct-12	2600	220	76	460	3356
Jan-13	830	53	11	87	981
May-13	550	33	41	43	667
Jul-13	1800	210	85	210	2305
Nov-13	2200	270	210	700	3380
Jan-14	590	60	11	120	781
Apr-14	69	4.8	8.7	7.3	89.8
Jul-14	1500	530	250	730	3010
Oct-14	1900	210	320	950	3380
Jan-15	500	40	4.4	100	644.4
Apr-15	550	33	20	31	634
Jul-15	1800	110	230	470	2610
Oct-15	2300	150	77	490	3017
Jan-16	410	11	8.6	21	451
Apr-16	52	1.1	0.15	4.3	57.4
Jul-16	440	11	6.3	5.8	463
Oct-16	1500	90	70	150	1810
Jan-17	27	0.37	0.3	0.28	27.37
Apr-17	41	1.7	1.4	0.61	44.71
Jul-17	1700	1100	380	960	4140
Oct-17	2100	220	440	640	3400



Natural Logarithm (Ct/Co) versus Time

Time (yrs)	Benzene ln(Ct/Co)	Toluene ln(Ct/Co)	Ethyl ln(Ct/Co)	Xylenes ln(Ct/Co)	Total ln(Ct/Co)
0.00	0.00	0.00	0.00	0.00	0.00
0.48	4.04	5.78	4.85	5.59	4.93
1.01	4.39	5.37	4.81	5.61	4.91
1.21	4.17	4.98	4.66	5.44	4.68
1.48	4.37	4.81	4.71	5.39	4.71
1.68	4.61	5.11	4.93	5.61	4.95
1.96	4.22	4.06	4.35	5.20	4.45
2.20	3.33	2.70	3.48	4.53	3.60
2.45	4.13	4.06	4.55	5.35	4.48
2.74	1.19	-0.55	0.25	1.65	1.09
2.97	3.58	3.28	3.72	4.78	3.87
3.20	3.78	3.99	4.28	5.24	4.27
3.46	3.56	3.03	4.49	5.26	4.15
3.70	3.50	3.20	4.42	5.09	4.05
3.95	3.50	3.28	4.28	4.89	3.95
4.18	3.00	2.09	3.47	4.35	3.35
4.45	2.89	1.53	-2.89	4.74	3.38
4.68	3.78	3.38	4.55	5.00	4.15
4.95	2.89	2.76	2.71	4.02	3.15
5.19	2.10	1.17	2.50	2.59	2.16
5.45	3.18	2.45	4.28	4.61	3.67
5.69	3.14	2.26	3.67	4.02	3.33
5.95	2.48	1.44	2.05	2.50	2.34
6.19	1.63	0.46	0.75	0.88	1.34
6.45	3.09	3.74	2.74	3.28	3.22
6.69	3.47	2.41	3.40	3.71	3.40
6.94	2.83	2.76	0.33	2.59	2.68
7.19	0.10	-1.04	-0.75	-0.59	-0.18
7.46	3.53	3.05	3.92	4.61	3.79
7.69	3.22	3.57	3.00	4.31	3.52
7.96	2.30	1.53	0.44	3.41	2.44
8.19	1.13	-0.42	-0.73	0.32	0.78
8.46	3.37	2.66	3.60	4.02	3.46
8.74	3.56	2.68	3.46	3.55	3.45
8.98	3.30	2.45	2.78	3.47	3.19
9.20	3.47	2.73	2.46	3.87	3.40
9.48	2.94	1.75	1.63	2.62	2.69
9.72	3.26	2.14	1.44	2.84	2.98
9.97	2.12	0.71	-0.49	1.17	1.75
10.30	1.70	0.24	0.82	0.47	1.36
10.49	2.89	2.09	1.55	2.05	2.60
10.76	3.09	2.34	2.46	3.26	2.98
11.01	1.77	0.84	-0.49	1.49	1.52
11.22	-0.37	-1.69	-0.73	-1.31	-0.64
11.49	2.71	3.01	2.63	3.30	2.87
11.74	2.94	2.09	2.88	3.56	2.98
12.01	1.61	0.43	-1.41	1.31	1.33
12.24	1.70	0.24	0.11	0.14	1.31
12.48	2.89	1.44	2.55	2.86	2.73
12.74	3.14	1.75	1.45	2.90	2.87
12.98	1.41	-0.86	-0.74	-0.25	0.97
13.23	-0.65	-3.16	-4.79	-1.84	-1.09
13.48	1.48	-0.86	-1.05	-1.54	1.00
13.73	2.71	1.24	1.36	1.71	2.36
13.99	-1.31	-4.25	-4.09	-4.57	-1.83
14.25	-0.89	-2.73	-2.55	-3.79	-1.34
14.50	2.83	3.74	3.05	3.57	3.19
14.75	3.04	2.14	3.20	3.17	2.99



RW-1A

BENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.764213221
R Square	0.584021847
Adjusted R Square	0.500826217
Standard Error	1.16215213
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	9.481008611	9.481008611	7.01986202	0.045453634
Residual	5	6.752987867	1.350597573		
Total	6	16.23399648			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.638611671	0.893522225	1.833879029	0.12613671	-0.658256578	3.93547992	-0.65825658	3.93547992
X Variable 1	1.785535695	0.673913643	2.649502221	0.04545363	0.053188355	3.517883035	0.053188355	3.517883035

TOLUENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.708666009
R Square	0.502207512
Adjusted R Square	0.402649015
Standard Error	1.491006665
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	11.21409009	11.21409009	5.04434603	0.074654048
Residual	5	11.11550438	2.223100876		
Total	6	22.32959446			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.056174371	1.146362476	1.793651148	0.132839	-0.890639372	5.002988114	-0.89063937	5.002988114
X Variable 1	1.941884014	0.864611188	2.245962162	0.07465405	-0.28066617	4.164434198	-0.28066617	4.164434198

ETHYLBENZENE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.477515884
R Square	0.228021419
Adjusted R Square	0.073625703
Standard Error	1.824121288
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	4.914143359	4.914143359	1.47686364	0.278514041
Residual	5	16.63709237	3.327418473		
Total	6	21.55123573			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.563888916	1.402478101	1.828113333	0.12707571	-1.041289925	6.169067756	-1.04128993	6.169067756
X Variable 1	1.285479565	1.057779091	1.215262786	0.27851404	-1.433623708	4.004582839	-1.43362371	4.004582839

XYLENES

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.691147642
R Square	0.477685063
Adjusted R Square	0.373222076
Standard Error	1.641955582
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	12.32826692	12.32826692	4.57276855	0.0854899
Residual	5	13.48009066	2.696018132		
Total	6	25.80835758			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.340199459	1.262419753	1.853741161	0.12295595	-0.904948525	5.585347442	-0.90494853	5.585347442
X Variable 1	2.036068011	0.952144078	2.138403271	0.0854899	-0.411492262	4.483628284	-0.41149226	4.483628284